

CONTRACT 48

BOARD OF WATER SUPPLY
OF THE
CITY OF NEW YORK



Information for Bidders, Forms of Proposal, Contract,
Bonds and Certificates, Specifications and Drawings

FOR THE

Construction of a Portion of an
INTERCEPTING SEWER

IN THE

CITY OF KINGSTON

Ulster County, New York

1909

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INFORMATION FOR BIDDERS

The Board of Water Supply of the City of New York has ^{General description.} begun the construction of a large system of works for procuring an additional water-supply from the Catskill mountains. The Act of the Legislature authorizing the construction of these works requires that before any water be diverted from Esopus creek, The City of New York shall reconstruct that portion of the First and Eighth Ward sewers of the City of Kingston, New York, which now discharges into Esopus creek, so that the discharge shall be into the Hudson river, or Rondout creek. This construction necessitates building an intercepting sewer about two and one-third miles long of which about 1 mile has been completed.

This contract is intended to cover the remainder of the ^{The work and its location.} intercepting sewer, about 1½ miles in length. It extends from the point where the Tannery Brook Sewer crosses North Front street, along North Front street and Washington avenue, crossing under the Wallkill Valley R. R. to South Wall street, and along a right-of-way through private property to the first man-hole on Wilbur avenue north of the culvert where the Twaalfskill crosses said avenue. The work is described in detail in the accompanying specifications and shown on a set of contract drawings.

Sealed bids or proposals for performing the work described ^{Date for opening bids.} herein will be received by the Board of Water Supply, in the office of the Board, Room 910, ninth floor, 299 Broadway, New York, until

at 11 A. M., at which place and time they will be publicly opened by the Board and read; the award of the contract, if awarded, will be made by the Board as soon thereafter as practicable.

All bids must be made upon the blank form of proposal ^{Printed form for bids.} attached hereto and should give the price for each item of the work proposed, both in writing and in figures, and must be signed and sworn to by the bidder, in accordance with the directions in the form of bid. Each bid must be enclosed in the

printed envelope provided for the purpose by the Board, and sealed.

Certified
check.

No bid will be received and deposited unless accompanied by a certified check upon a National or State bank, drawn and made payable to the order of the Comptroller of The City of New York, for five thousand dollars (\$5,000) for the proper execution of the contract. Such check must not be enclosed in the sealed envelope containing the bid, but shall be delivered to the Board, or its Secretary, who will give a proper voucher for the deposit. All such deposits, except that made by the bidder to whom the contract shall be awarded, will be returned to the person or persons making the same within 3 days after the decision as to who shall receive the contract.

Checks
returned.

Deposit may
be forfeited.

If the bidder to whom the contract shall have been awarded shall refuse or neglect, within 10 days after due notice that the contract has been awarded to him, to execute the same and furnish the security required, the amount of the deposit made by him shall be forfeited to, and be retained by, the said City as liquidated damages for such neglect or refusal, and shall be paid into the general fund of said City, pursuant to the provisions of Section 30 of Chapter 724 of the Laws of 1905, but if the said bidder to whom the contract is awarded shall execute the contract and furnish the said security within the time aforesaid, the amount of his deposit will be returned to him.

Bond
required.

A bond in the sum of fifty thousand dollars (\$50,000) will be required for the faithful performance of the contract. This bond must be signed by the Contractor and the surety, who must be satisfactory to the Board. The name and address of the surety offered must be stated in the bid or proposal.

Time for
executing
contract
and bond.

The bidder whose bid shall be accepted will be required to attend at the office of the Board in person, or if a corporation, by a duly authorized representative, with the surety offered by him, and to execute the contract and bond within 10 days from the date of the service of a written notice that the contract has been awarded to him, delivered to him in person, or mailed to the address given in the bid; in case of failure or neglect so to do, he may, at the option of the Board, be deemed to have abandoned the contract and as in default to The City under the provisions of Section 30, of Chapter 724, Laws of 1905.

The attention of bidders is especially directed to the contract requirements as to the time of beginning work, the rate of progress and the date for completion of the whole work, as required by Article VI, of the contract.

Time for
beginning and
completing
work.

Wash and diamond drill borings have been made along the line of the work at stations shown on the plans. The samples of earth and rock obtained may be seen in the office of the Engineer of the Board at 293 Wall street, Kingston, New York. The classification of the materials as interpreted from the borings and shown on the plans, is not guaranteed.

Borings.

Statement of Quantities: The following is a statement, based upon the estimate of the Engineer, of the quantities of the various classes of work, and of the nature and extent, as near as practicable, of the work required; the several bids will be computed, tested and canvassed by the quantities and kinds of work mentioned in this statement, viz.:

Approximate
quantities.

APPROXIMATE STATEMENT OF QUANTITIES

Item 1.	Shafts in earth	60 linear feet.
Item 2.	Shafts in rock	160 linear feet.
Item 3.	Tunnel in rock	6000 linear feet.
Item 4.	Tunnel in earth	200 linear feet.
Item 5.	Lining of tunnel in solid rock...	5600 linear feet.
Item 6.	Lining of tunnel in earth and insecure rock	600 linear feet.
Item 7.	Earth excavation and refilling trench	3100 cubic yards.
Item 8.	Rock excavation and refilling trench	850 cubic yards.
Item 9.	Furnishing and laying 24-inch vitrified sewer-pipe	1300 linear feet.
Item 10.	Furnishing and laying 24-inch cast-iron pipe	12 linear feet.
Item 11.	Furnishing and laying 6-inch vitrified sewer-pipe	50 linear feet.
Item 12.	Manholes	6 manholes.
Item 13.	Concrete masonry	70 cubic yards.
Item 14.	Trimming in rock tunnel	200 linear feet.
Item 15.	Cleaning up	lump sum.

Basis for comparison of bids.

These quantities are approximate only, being given as a basis for the uniform comparison of bids, and the Board does not expressly or by implication agree that the actual amount of work will correspond therewith, but reserves the right to increase or decrease the quantity of any class or portion of the work, as may be deemed necessary by the Engineer.

Bidders are required to submit their estimates upon the following express conditions, which shall apply to, and become part of every bid received, viz.:

Bidders must satisfy themselves as to accuracy of approximate quantities.

Bidders must satisfy themselves, by personal examination of the location of the proposed work, and by such other means as they may prefer, as to the actual conditions and requirements of the work and the accuracy of the foregoing estimate of the Engineer, and shall not, at any time after the submission of a bid, dispute or complain of such statement or estimate of the Engineer, nor assert that there was any misunderstanding in regard to the nature or amount of the work to be done.

Prices not changed by change of quantity.

An increase or decrease in the quantity for any item shall not be regarded as a sufficient ground for an increase or decrease in the prices, nor in the time allowed for the completion of the work, except as provided in the contract.

Balanced bidding.

The excavation, masonry and other parts of the work have been divided into classes and items in order to enable the Bidder to bid for the different portions of the work in accordance with his estimate of their costs, so that in the event of an increase or decrease in the quantities of any particular class of work, the actual quantities executed may be paid for at the price bid for that particular class of work.

Bidders referred to Laws.

The attention of bidders is especially called to the provisions of Chapter 724 of the Laws of 1905, and acts amendatory thereof, as to the letting of contracts and payment for work; to "The Labor Law"; and to the laws and regulations relating to mines, quarries and tunnels promulgated by the Commissioner of Labor, of the State of New York.

No bid withdrawn.

No bid will be allowed to be withdrawn, for any reason whatever, after it has been deposited with the Board of Water Supply. No bid will be accepted from, nor contract awarded to, any person who is in arrears to the Corporation of The City of New York, upon debt or contract; nor who is in default, as

No bid from person in arrears to City.

surety or otherwise, upon any obligation to the Corporation of The City of New York.

Before the award of the contract, any bidder may be required to show that he has the necessary facilities, experience, ability and financial resources to perform the work in a satisfactory manner and within the time stipulated, and that he has had experience in constructing works of the same or a similar nature. ^{Bidder's ability.}

The Board reserves the right to select the bid or proposal, the acceptance of which will, in its judgment, best secure the efficient performance of the work, or to reject any or all bids. ^{Bids may be rejected.}

Proposals which are incomplete, conditional or obscure, or which contain additions not called for, erasures, alterations, or irregularities of any kind may be rejected as informal. Failure to name the surety will be sufficient cause for the rejection of a proposal. ^{Informal bids.}

JOHN A. BENDEL,	}	<i>Commissioners of the Board of Water Supply.</i>
President.		
CHARLES N. CHADWICK,		
CHARLES A. SHAW,		

*Office of the Board of Water Supply,
299 Broadway, New York.*

Dated, New York, July 1, 1909.

BID OR PROPOSAL

TO THE BOARD OF WATER SUPPLY OF THE CITY OF NEW YORK

For the Construction of a Portion of an Intercepting Sewer in the City of Kingston, Ulster County, New York.

NOTE.—The Bidder's name and residence must be inserted here, and in case of a firm the name and residence of each and every member of the firm must be inserted.

In case a bid shall be submitted by or in behalf of any corporation, the complete legal name of such corporation must be written here.

Made this.....day of....., 1909, by

.....
.....
.....
.....
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.....

The party named above, as Bidder, declares that the only person or persons interested in this bid or proposal as principal or principals is or are named above, and that no other person than hereinabove named has any interest in this proposal or in the contract proposed to be taken; that this bid or proposal is made without any connection with any other person or persons making a bid or proposal for the same purpose; that the bid or proposal is in all respects fair and without collusion or fraud, and that no member of the Board of Water Supply or of the Board of Aldermen, no head of a department, no chief of a bureau, deputy thereof, or clerk therein, nor other officer of The City of New York, nor any person in the employ of the Board

of Water Supply, is, shall be or become, directly or indirectly, interested as contracting party, partner, stockholder, surety or otherwise in the performance of the contract, or in the supplies, work or business to which it relates, or in any portion of the profits thereof; that the names of the persons affixed to the surety's consent hereto annexed were written by said persons respectively, and that said persons are householders or free-

holders in
or duly authorized representatives of the surety company for which they severally executed the consent; that he has examined the site of the work, the form of contract and the specifications approved by the Corporation Counsel, and the drawings therein referred to, and has read the Information for Bidders hereto attached; and he proposes and agrees if this proposal be accepted, that he will contract, in the form so approved, to perform all the work mentioned in said approved form of contract and specifications, and that he will accept in full payment therefor the following sums, to wit:

Intending
bidders to
examine
sites.

ITEM 1. For shafts in earth, the sum of.....
.....
.....dollars (\$))
per linear foot of shaft.

ITEM 2. For shafts in rock, the sum of.....
.....
.....dollars (\$))
per linear foot of shaft.

ITEM 3. For tunnel in rock, the sum of.....
.....
.....dollars (\$))
per linear foot of tunnel.

ITEM 4. For tunnel in earth, the sum of

.....

.....dollars (\$))
per linear foot of tunnel.

ITEM 5. For lining of tunnel in solid rock, the sum of....

.....

.....dollars (\$))
per linear foot of lining.

ITEM 6. For lining of tunnel in earth and insecure rock,
the sum of

.....dollars (\$))
per linear foot of lining.

ITEM 7. For earth excavation and refilling trench, the sum
of

.....dollars (\$))
per cubic yard.

ITEM 8. For rock excavation and refilling trench, the sum
of

.....dollars (\$))
per cubic yard.

ITEM 9. For furnishing and laying 24-inch vitrified sewer-
pipe, the sum of

.....dollars (\$))
per linear foot.

ITEM 10. For furnishing and laying 24-inch cast-iron pipe
the sum of
.....dollars (\$))
per linear foot.

ITEM 11. For furnishing and laying 6-inch vitrified sewer-
pipe, the sum of
.....dollars (\$))
per linear foot.

ITEM 12. For furnishing materials for and building man-
holes, the sum of
.....dollars (\$))
per manhole.

ITEM 13. For concrete masonry, the sum of
.....
.....dollars (\$))
per cubic yard.

ITEM 14. For trimming in rock tunnel, the sum of.....
.....
.....dollars (\$))
per linear foot.

ITEM 15. For cleaning up, the lump sum of
.....
.....dollars (\$))

What the
prices are
to cover.

The prices are to include and cover the furnishing of all the materials, the performing of all the labor requisite or proper, and the providing of all necessary machinery, tools, apparatus and other means of construction; and the doing of all the above mentioned work in the manner set forth, described and shown in the specifications and on the drawings for the work, and in the form of contract.

Contract to
be executed
in 10 days.

The Bidder further agrees to execute the contract and give the required security within 10 days from the date of the service of a written notice that said contract has been awarded to him.

Forfeiture
of deposit.

If this proposal shall be accepted by the Board of Water Supply, and the Bidder shall refuse or neglect, within 10 days after date of service of the written notice that the contract has been awarded, to execute the same, and to give a bond in the sum of fifty thousand dollars (\$50,000), with a surety satisfactory to the Board, then the Board may, at its option, determine that the Bidder has abandoned the contract, and thereupon the proposal and the acceptance shall be null and void and the deposit of five thousand dollars (\$5,000) accompanying this proposal shall be forfeited to, and retained by, The City of New York as liquidated damages for such neglect or refusal, and shall be paid into the general fund of the said City, pursuant to the provisions of Section 30 of Chapter 724 of the Laws of 1905; but if the said Bidder shall execute the contract, and furnish the said security within the time aforesaid, the amount of his deposit shall be returned to him within 3 days after the execution of the contract and bond.

II

NOTE.—Each and every person bidding and named above must sign here. In the case of a firm give the first and last name of each and every party in full, with residence.

In case a bid shall be submitted by or in behalf of any corporation, it must be signed in the full legal name of such corporation by some authorized officer or agent thereof, who shall also subscribe his name and office. If practicable, the seal of the corporation must be affixed.

.....

of

.....

of

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of

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of

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of

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of

.....

of

The Bidder is required to state below what work of a similar character to that included in the proposed contract he has done and give references which will enable the Board to judge of his responsibility, experience, skill and business standing.

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The Bidder is required to state below the name and address of the surety offered as security on the bond to be given for the faithful performance of the contract.

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NOTE.—The person or all persons making this bid must swear to the following affidavit, and in case of a corporation this affidavit must be made by one of its officers as an individual. If the affidavit is made out of the County of New York, a certificate must be attached showing the authority of the official before whom the affidavit was made.

State of, }
County of, } ss.:

..... Name(s) of
Affiant(s).
.....
.....
.....
.....

being duly sworn, say, each for himself, that the several matters in the above bid are in all respects true.

..... Signature(s)
of Affiant(s).
.....
.....
.....
.....

Subscribed and sworn to before me this }
.....day of, 1909. }

.....

.....
Title

SURETY'S CONSENT

Consent of
surety.

In consideration of the premises, and of One Dollar to in hand paid by The City of New York, and of other good and valuable considerations, the receipt whereof is hereby acknowledged,

The undersigned consents and agrees, that if the contract for which the preceding bid or proposal is made be awarded to the person or persons making the same, the undersigned will, upon its being so awarded, become bound as his or their or its surety for the faithful performance of said contract; and if the said person or persons shall omit or refuse to execute such contract and give the proper security within ten days after written notice that the same is ready for execution, if so awarded, the undersigned will pay, without proof of notice or demand, to The City of New York, any difference between the sum to which such person or persons would be entitled upon the completion of such contract, and the sum which The City of New York may be obliged to pay to the person or persons to whom the contract shall be awarded at any subsequent letting; the amount in each case to be calculated upon the estimated quantities of work, labor and materials by which the bids are tested; provided, however, that the estimated amount under the subsequent letting be greater.

IN WITNESS WHEREOF, have hereunto set hand ,

this.....day of.....,
one thousand nine hundred and nine.

NOTE.—The surety must sign below and state his place of business or residence.

.....
.....
.....
.....
.....

Attach acknowledgment and statement of surety company here.

Certificate
of acknowl-
edgment of
surety, if
individual.

State of }
County of } ss.:

On this.....day of.....,
1909, before me personally came
.....
.....

to me known and known to me to be the same person described
in and who executed the foregoing consent, and he acknowl-
edged to me that he executed the same for the purpose therein
mentioned.

.....

.....

Title

NOTE.—If the surety is a householder, the word "house" must be written in the following deposition; if a freeholder, the word "free" must be written. The deposition must be signed by the proposed bondsman and sworn to.

State of }
County of } ss.: Affidavit of individual surety.

The above-named
being duly sworn, says that he is aholder in
.....
that he resides at.....
.....

and is worth the sum of fifty thousand dollars (\$50,000), being the amount of the security required for the completion of the contract above referred to, over and above all his debts of every nature, over and above his liabilities as bail, surety, or otherwise, and over and above all his property which is exempt by law from execution; and that he has offered himself as a surety in good faith, and with an intention to execute the bond required by law.

Subscribed and sworn to before me this

.....day of, 1909.

.....

.....

Title

THE CORPORATION OF THE CITY OF NEW YORK
BOARD OF WATER SUPPLY
CONTRACT

**For the Construction of a Portion of an Intercepting
Sewer in the City of Kingston, Ulster
County, New York.**

NOTE.—The marginal notes printed on the pages of this pamphlet are intended for convenience of reference only, and do not form part of the contract nor specifications.

Parties.

This agreement, made and entered into this.....

day of, in the year one thousand nine hundred and nine, by and between The City of New York, acting by and through the Board of Water Supply, by virtue of the power vested in it by Chapter 724 of the Laws of 1905, of the State of New York and the amendments thereto, party of the

first part, and
.....
.....
.....
.....
.....
.....
.....

hereinafter designated as the Contractor, part of the second part,

Covenants.

WITNESSETH, That the parties to these presents each in consideration of the undertakings, promises and agreements on the part of the other herein contained, have undertaken, prom-

ised and agreed, and do hereby undertake, promise and agree, the party of the first part for itself, its successors and assigns, and the part of the second part for and heirs, executors and administrators, or successors, as follows:

ARTICLE I. Wherever the words defined in this article, or ^{Definitions.} pronouns used in their stead, occur in this contract and the specifications hereto attached they shall have the meanings here given.

The City shall mean the Corporation of The City of New ^{The City.} York.

The Board shall mean the Board of Water Supply of The ^{Board.} City of New York, or any commission or officer duly authorized to act for The City in the execution of the work required by this contract.

Commissioners shall mean the individual members of the ^{Commis-} Board of Water Supply. ^{sioners.}

Chief Engineer shall mean the person holding the position ^{Chief} or acting in the capacity of Chief Engineer of the Board of ^{Engineer.} Water Supply of The City of New York, or any person whom the Board may designate to act in the stead of the Chief Engineer in the case of the latter's absence or disability.

Engineer, whenever not qualified, shall mean the Chief Engi- ^{Engineer.} neer of the Board of Water Supply of The City of New York, acting either directly or through his properly authorized agents, such agents acting severally within the scope of the particular duties entrusted to them.

Contractor shall mean the party of the second part, above ^{Contractor.} designated, entering into this contract for the performance of the work required by it, and the legal representatives of said party, or the agent appointed to act for said party in the performance of the work.

Rock, whenever used as a name of an excavated material, ^{Rock.} shall mean the ledge-rock removed, or to be removed properly, by blasting, channeling, wedging or barring; also such boulders as exceed $\frac{1}{2}$ cubic yard in volume, removed, or to be removed from the excavations, and any excavated masonry.

Earth shall mean all kinds of materials excavated or which ^{Earth.} are to be excavated, except rock as above defined.

Wherever in the specifications or upon the drawings the ^{Directed,} words directed, required, permitted, ordered, designated, pre- ^{required,} ^{permitted,} ^{etc.}

scribed, or words of like import are used, it shall be understood that the direction, requirement, permission, order, designation, or prescription of the Engineer is intended, and similarly the words approved, acceptable, satisfactory, or words of like import, shall mean approved by, or acceptable, or satisfactory to, the Engineer, subject in each case to the final determination of the Board, unless otherwise expressly stated.

Datum
of levels.

The figures shown upon the drawings after the word "elevation" or an abbreviation of it, shall mean distances in feet above the datum of the City of Kingston, N. Y.

In case of
disability of
Chief
Engineer.

ART. II. Whenever the Chief Engineer aforesaid shall be unable to act in consequence of absence or other cause, then such engineer or assistant, as the Board shall designate, shall perform all the duties, and be vested with all the power herein given to the said Chief Engineer.

Engineer
to decide.

ART. III. To prevent disputes and litigations, the Engineer shall in all cases determine the amount, quality, acceptability and fitness of the several kinds of work and materials which are to be paid for under this contract; shall determine all questions in relation to said work and the construction thereof, and shall in all cases decide every question which may arise relative to the fulfillment of this contract on the part of the Contractor. His estimate and decision shall be final and conclusive upon said Contractor, and in case any question shall arise between the parties hereto, touching this contract, such estimate and decision shall be a condition precedent to the right of the Contractor to receive any money under this contract.

Engineer
to make
explanations
and give
orders.

ART. IV. The Engineer shall make all necessary explanations as to the meaning and intention of the specifications, shall give all orders and directions contemplated therein or thereby, and in every case in which a difficult or unforeseen condition shall arise in the performance of the work required by this contract.

Engineer
to adjust
differences.

Any differences or conflicts which may arise between the Contractor and other contractors of the Board in regard to their work shall be adjusted and determined by the Engineer.

ART. V. The Contractor shall do all the work and furnish all the materials, tools and appliances, except as herein otherwise specified, necessary or proper for performing and completing the work required by this contract, in the manner and *within the time* hereinafter specified. He shall complete the entire work to the satisfaction of the Board, and in accordance with the specifications and drawings herein mentioned, at the prices herein agreed upon and fixed therefor. All the work, labor and materials to be done and furnished under this contract shall be done and furnished strictly pursuant to, and in conformity with, the attached specifications, and the directions of the Engineer as given from time to time during the progress of the work, under the terms of this contract, and also in accordance with the contract drawings, which said specifications and drawings form parts of this agreement. The Information for Bidders hereto attached and the Proposal submitted by the Contractor are also made parts of this contract.

Obligations
of Contractor.

Specifications
and drawings
are part of
this contract.

ART. VI. The Contractor shall commence the work embraced in this contract within 10 days after the service of a notice by the Board on him instructing him to begin work, and shall complete the same in all respects within 24 consecutive calendar months following the service of said notice.

Time for
beginning and
completing
the work.

The time in which this contract is to be performed and the work is to be completed is of the essence of this agreement.

Time
important.

ART. VII. The Board reserves the right of suspending the whole or any part of the work herein contracted to be done, if it shall deem it for the interest of The City of New York so to do, without compensation to the Contractor for such suspension, other than extending the time for completing the work as much as it may have been delayed by such suspension. If the said work shall be delayed for the reason that the necessary rights-of-way have not been obtained, then and in that case, and in every such case the Contractor shall be entitled to so much additional time wherein to perform and complete this contract on his part as the Engineer shall certify in writing to be just. No allowance by way of damages shall be made for any of the above delays.

Suspension
of work and
additional
time for
performance.

No claim
because actual
quantities
differ from
preliminary
statement.

ART. VIII. The quantities of the various classes of work to be done and materials to be furnished under this contract, which have been estimated as stated in the Information for Bidders attached hereto, are approximate and only for the purpose of comparing, on a uniform basis, the bids offered for the work under this contract; and neither The City, nor the Board, nor any member of the Board, is to be held responsible that any of the said estimated quantities shall be found even approximately correct in the construction of the work; and the Contractor shall make no claim for anticipated profits, or for loss of profit, because of a difference between the quantities of the various classes of work actually done or materials actually delivered, and the estimated quantities stated in the Information for Bidders.

Contract and
specifications
may be
modified by
written
agreement.

ART. IX. This Contract and the specifications herein contained and the drawings herein referred to, may be modified and changed from time to time as may be agreed in writing between the parties hereto, in a manner not materially affecting the substance thereof nor materially increasing the amount to be paid, in order to carry out and complete more fully and perfectly the work herein agreed to be done and performed.

Contractor's
claim for
damage.

Statements of
damage to be
filed with
Engineer.

ART. X. If the Contractor shall claim compensation for any damage sustained by reason of the acts of the Board, or its agents, he shall, within 5 days after the sustaining of such damage, make a written statement of the nature of the damage sustained, to the Engineer. On or before the fifteenth day of the month succeeding that in which any such damage shall have been sustained, the Contractor shall file with the Engineer an itemized statement of the details and amount of such damage, and unless such statement shall be made as thus required, his claim for compensation shall be forfeited and invalidated, and he shall not be entitled to payment on account of any such damage.

Access to
work and
places of
manufacture.

ART. XI. The Board and its engineers, inspectors, agents and other employees, shall for any purpose, and other parties who may enter into contracts with the Board for doing work within the territory covered by this contract, shall, for all purposes which may be required by their contracts, have access to

the work and the premises used by the Contractor, and the Contractor shall provide safe and proper facilities therefor. Furthermore, the Board and its engineers, inspectors and agents shall, at all times, have immediate access to all places of manufacture where materials are being made for use under this contract, and shall have full facilities for determining that all such materials are being made strictly in accordance with the specifications and drawings.

ART. XII. The Engineer shall be furnished with every reasonable facility for ascertaining whether the work is in accordance with the requirements and intention of this contract, even to the extent of uncovering or taking down portions of finished work. Should the work thus exposed or examined prove satisfactory, the uncovering or taking down and the replacing of the covering or the making good of the parts removed, shall be paid for at the contract prices for the class of work done; but should the work exposed or examined prove unsatisfactory, the uncovering, taking down, replacing and making good shall be at the expense of the Contractor. ^{Examination of work.}

ART. XIII. The inspection of the work shall not relieve the Contractor of any of his obligations to fulfill his contract as herein prescribed, and defective work shall be made good and unsuitable materials may be rejected, notwithstanding that such work and materials have been previously overlooked by the Engineer and accepted or estimated for payment. If the work, or any part thereof, shall be found defective before the final acceptance of the whole work, the Contractor shall forthwith make good such defect, in a manner satisfactory to the Engineer, and if any material brought upon the ground for use in the work, or selected for the same, shall be condemned by the Engineer as unsuitable or not in conformity with the specifications, the Contractor shall forthwith remove such materials to a satisfactory distance from the vicinity of the work. ^{Defective work.}

ART. XIV. Nothing in this contract shall be considered as vesting in the Contractor any right of property in materials used, after they shall have been attached or affixed to the work or the soil, but all such materials shall, upon being so attached or affixed, become the property of The City. ^{Right of property in materials.}

Competent
men to be
employed.

ART. XV. The Contractor shall employ only competent, skillful men to do the work, and whenever the Engineer shall notify the Contractor, in writing, that any man on the work is, in his opinion, incompetent, unfaithful, disorderly or otherwise unsatisfactory, such man shall be discharged from the work, and shall not again be employed on it, except with the consent of the Engineer.

Compliance
with Labor
Law required.

ART. XVI. The Contractor shall comply with the provisions of "The Labor Law." No laborer, workman or mechanic in the employ of the Contractor, subcontractor or other person doing or contracting to do the whole or part of the work contemplated by the contract shall be permitted or required to work more than eight hours in any one calendar day, except in cases of extraordinary emergency caused by fire, flood or danger to life or property. The wages to be paid for a legal day's work to all classes of such laborers, workmen or mechanics upon such work or upon any material to be used thereon shall not be less than the prevailing rate for a day's work in the same trade or occupation in the locality where such work is being constructed. Each such laborer, workman or mechanic shall receive the prevailing rate of wages. This contract shall be void and of no effect unless the person or corporation making or performing the same shall comply with the provisions of Sections 3 and 14 of the Labor Law.

No store pay.

ART. XVII. The Contractor shall punctually pay his employees who shall be engaged on the work covered by this contract, in cash and not in scrip, commonly known as store money-orders, and he shall not directly or indirectly conduct or carry on what is commonly known as a company store if there shall at the time be any store selling supplies within two miles of the place where this contract is being executed.

Expense
caused by
riots to be
borne by
Contractor.

ART. XVIII. Any expense necessarily incurred by a county, town or city in any criminal action or proceeding against any person employed on any work, constructed or in process of construction under this contract, or in the suppression of riots among persons employed on said work, or in the prevention of the commission of crime by such persons, after being duly audited as required by law, shall constitute a claim in favor of

such county, town or city against The City of New York, and an action may be maintained on such audit as for money paid to the use of The City, and the said Contractor shall be responsible to The City for any amount or expense incurred by reason of, and upon the grounds set forth in this article.

ART. XIX. This contract shall not take effect until the Contractor or employer of labor to be engaged in the construction of any of the work herein provided for shall give to the municipality in which such labor may be employed a bond in the penal sum of five thousand dollars (\$5,000), conditioned to indemnify and save harmless such municipality against any loss, expense or charge that said municipality may legally incur because of paupers or indigent employees brought into said municipality and having no settlement therein, such bond to be approved by the chief executive officer of such municipality.

Bond to
indemnify
municipalities
against
paupers, etc.

ART. XX. The Contractor shall keep himself fully informed of all laws and municipal ordinances and regulations in any manner affecting those engaged or employed in the work, or the materials used in the work, or in any way affecting the conduct of the work, and of all orders and decrees of bodies or tribunals having any jurisdiction or authority over the same. If any discrepancy or inconsistency should be discovered in this contract, or in the drawings or specifications herein referred to, in relation to any such law, ordinance, regulation, order, or decree, he shall forthwith report the same in writing to the Engineer. He shall at all times himself observe and comply with, and shall cause all his agents and employees to observe and comply with, all such existing and future laws, ordinances, regulations, orders and decrees; and shall protect and indemnify The City and the Board and its officers and agents against any claim or liability arising from or based on the violation of any such law, ordinance, regulation, order, or decree, whether by himself or by his employees.

Laws and
regulations.

ART. XXI. The Contractor shall give his personal attention constantly to the faithful prosecution of the work, and shall be present, either in person or by a duly authorized representative, on the site of the work, continually during its progress to receive directions or instructions from the Engineer; he shall

Assignment.

not assign, transfer, convey, sublet or otherwise dispose of this contract, or his right, title or interest in or to the same or any part thereof, without the previous consent in writing of the Board indorsed herein or hereto attached; and he shall not assign, by power of attorney or otherwise, any of the moneys to become due and payable under this contract, unless by and with the like consent signified in like manner. If the Contractor shall, without such previous written consent, assign, transfer, convey, sublet, or otherwise dispose of this contract, or of his right, title or interest therein, or any of the moneys to become due under this contract, to any other person, company or other corporation, this contract may, at the option of the Board, be revoked and annulled, and The City shall thereupon be relieved and discharged from any and all liability and obligations growing out of the same to the Contractor, and to his assignee or transferee; provided, that nothing herein contained shall be construed to hinder, prevent, or affect an assignment by the Contractor for the benefit of his creditors, made pursuant to the statutes of the State of New York; and no right under this contract, or to any money to become due hereunder shall be asserted against The City in law or equity, by reason of any so-called assignment of this contract, or any part thereof, or of any moneys to grow due hereunder, unless authorized as aforesaid by the written consent of the Board.

Responsibility
of Contractor.

ART. XXII. The Contractor shall take all responsibility of the work, shall bear all losses resulting to him on account of the amount or character of the work, or because the nature of the land in or on which the work is done is different from what is assumed or was expected, or on account of the weather, floods or other causes; and he shall assume the defense of, and indemnify and save harmless The City and the Board and each member of the Board, and their officers and agents, from all claims of any kind arising from the performance of this contract.

Prevention
of, and in-
demnification
for, accidents.

ART. XXIII. The Contractor shall, during the performance of the work, take all necessary precautions and place proper guards for the prevention of accidents; shall put up and keep at night suitable and sufficient lights, and shall indemnify and save harmless The City and the Board, its officers and agents

from all damages and costs to which they may be put by reason of injury to the person or property of another resulting from negligence or carelessness in the performance of the work, or in guarding the same, or from any improper materials, implements or appliances used in its construction, or by or on account of any act or omission of the Contractor or his agents. The whole or so much of the moneys due under and by virtue of this contract as shall or may be considered necessary by the Comptroller, may at its option, be retained by The City until all suits or claims for damages as aforesaid shall have been settled, and evidence to that effect furnished to the satisfaction of the Comptroller.

ART. XXIV. The Contractor shall hold himself responsible ^{Claims for infringement of patents.} for any claims made against The City for any infringement of patents by the use of patented articles in the construction and completion of the work, or any process connected with the work agreed to be performed under this contract or of any materials used upon the said work, and shall indemnify and save harmless The City for all costs, expenses and damages which The City shall be obliged to pay by reason of any infringement of patents used in the construction and completion of the work.

ART. XXV. If the work to be done under this contract ^{Abandonment of work.} shall be abandoned by the Contractor, or if this contract shall be assigned, or the work sublet by him, otherwise than as herein specified, or if at any time the Engineer shall be of the opinion, and shall so certify in writing to the Board that the performance of the contract is unnecessarily or unreasonably delayed, or that the Contractor is willfully violating any of the conditions or covenants of this contract, or of the specifications, or is executing the same in bad faith or not in accordance with the terms thereof, or if the work be not fully completed within the time named in this contract for its completion, or as specified in Article VI, or within the time to which the completion of the contract may be extended by the Board, the Board may notify the Contractor to discontinue all work, or any part thereof, under this contract, by a written notice to be served upon the Contractor, either personally or by leaving said notice at his address, or with his agent in charge of the work or with any employee found on the work; and thereupon the Contractor

Completion
of work after
abandonment.

shall discontinue the work, or such part thereof, and the Board shall thereupon have the power to contract for the completion of the contract in the manner prescribed by law, or to place such and so many persons as it may deem advisable, by contract or otherwise, to work, and complete the work herein described, or such part thereof, to take possession of and use any of the materials, plant, tools, equipment, supplies and property of every kind provided by the Contractor for the purposes of his work, and to procure other materials for the completion of the same, and to charge the expense of said labor and materials to the Contractor. The expense so charged shall be deducted and paid by The City out of such moneys as may be due or may at any time thereafter grow due to the Contractor under and by virtue of this contract, or any part thereof. And in case such expense shall exceed the amount which would have been payable under the contract if the same had been completed by the Contractor, he shall pay the amount of such excess to The City; and in case such expense shall be less than the amount which would have been payable under this contract if the same had been completed by the Contractor, he shall forfeit all claim to the difference; and when any particular part of the work is being carried on by the Board, by contract or otherwise, under the provisions of this article of the contract, the Contractor shall continue the remainder of the work in conformity with the terms of this contract, and in such manner as in nowise to hinder or interfere with the persons or workmen employed, as above provided, by the Board, by contract or otherwise, to do any part of the work, or to complete the same under the provisions of this article of the contract.

Damages to
be paid City.

Damages for
failure to
complete
on time.

ART. XXVI. The Contractor shall pay to The City all expenses, losses and damages, as determined by the Engineer, incurred in consequence of any defect, omission or mistake of the Contractor or his employees, or the making good thereof. He shall also pay for each and every day, except Sundays and legal holidays, that he shall be in default in completing the entire work to be done under this contract, the sum of forty dollars (\$40), which sum is hereby agreed upon, not as a penalty, but as liquidated damages which The City will suffer by reason of such default. The City shall have the right to deduct the amount of any such damages from any moneys due or to become

due the Contractor under this contract; provided, however, that the Board shall have the right in its discretion to extend the time for the completion of the work, beyond the time stated in this contract. If the time for the completion of the work as aforesaid shall be extended by the Board, then and in such case The City shall be fully authorized and empowered to deduct from the final estimate of the amount due the Contractor under the provisions of this contract, the amount of any damages determined as hereinbefore stipulated for each day that the Contractor shall be in default, for the completion of the work, beyond the date to which the time for said completion shall have been extended by the Board. Permitting the Contractor to continue and finish the work, or any part of it, after the time fixed for its completion, or after the date to which the time for completion may have been extended, shall in nowise operate as a waiver on the part of The City of any of its rights under this contract.

Extension
of time.

Permission
to complete
contract not
a waiver.

ART. XXVII. If at any time before or within 30 days after the whole work herein agreed to be performed, and all the labor and material herein agreed to be delivered, have been performed or delivered or completed and accepted by The City, any person or persons claiming to have performed any labor or furnished any material toward the performance or completion of this contract shall file with the Board, and with the Comptroller of The City, any such notice as is described in the Lien Law, The City shall retain until the discharge thereof, from the moneys under its control, so much of such moneys as shall be sufficient to satisfy and discharge the amount in such notice claimed to be due, together with the costs of any action or actions brought to enforce such lien created by the filing of such notice.

Liens.

ART. XXVIII. The City may keep any moneys which would otherwise be payable at any time hereunder, and apply the same, or so much as may be necessary therefor, to the payment of any expenses, losses or damages, as determined by the Engineer, incurred by The City or the Board, and may retain until all claims shall have been settled so much of such moneys as the Board shall be of opinion will be required to settle all claims against The City and the Board and its officers and

Money may
be retained.

agents, specified in Articles XVIII, XX, XXIII, XXIV, XXV, XXVI and XXVII; and all claims for labor on the work, and also all those claims for materials for the work, notice of which, signed and sworn to by the claimants, shall have been filed in the office of the Board, or The City may make such settlements and apply thereto any moneys retained under this contract.

Prices for
work.

ART. XXIX. The City will pay, and the Contractor shall receive, in full compensation for furnishing all the materials and labor, and for performing and completing all the work which is necessary or proper to be furnished or performed, in order to complete the entire work in this contract described and specified, and in said specifications and drawings described and shown, and also for all loss or damages arising out of the nature of the work aforesaid, or from the action of the elements, or from any unforeseen obstruction or difficulty encountered in the prosecution of the work, and for all risks of any description connected with the work, and for all expense incurred by or in consequence of the suspension or discontinuance of the work as herein specified, the following prices, to wit:

ITEM 1. For shafts in earth, the sum of.....
.....
.....dollars (\$))
per linear foot of shaft.

ITEM 2. For shafts in rock, the sum of.....
.....
.....dollars (\$))
per linear foot of shaft.

ITEM 3. For tunnel in rock, the sum of.....
.....
.....dollars (\$))
per linear foot of tunnel.

ITEM 4. For tunnel in earth, the sum of.....

dollars (\$))
 per linear foot of tunnel.

ITEM 5. For lining of tunnel in solid rock, the sum of....

dollars (\$))
 per linear foot of lining.

ITEM 6. For lining of tunnel in earth and insecure rock, the
 sum of.....
dollars (\$))
 per linear foot of lining.

ITEM 7. For earth excavation and refilling trench, the sum of

dollars (\$))
 per cubic yard.

ITEM 8. For rock excavation and refilling trench, the sum of

dollars (\$))
 per cubic yard.

ITEM 9. For furnishing and laying 24-inch vitrified sewer-
 pipe, the sum of.....
dollars (\$))
 per linear foot.

ITEM 10. For furnishing and laying 24-inch cast-iron pipe,
the sum of.....
.....dollars (\$))
per linear foot.

ITEM 11. For furnishing and laying 6-inch vitrified sewer-
pipe, the sum of.....
.....dollars (\$))
per linear foot.

ITEM 12. For furnishing materials for and building man-
holes, the sum of.....
.....dollars (\$))
per manhole.

ITEM 13. For concrete masonry, the sum of.....
.....
.....dollars (\$))
per cubic yard.

ITEM 14. For trimming in rock tunnel, the sum of.....
.....
.....dollars (\$))
per linear foot.

ITEM 15. For cleaning up, the lump sum of.....
.....
.....dollars (\$))

ART. XXX. In order to assist the Contractor to prosecute the work advantageously, the Engineer shall, from time to time, as the work progresses, but not oftener than once a month, on or about the twenty-fifth day of the month, make in writing an estimate, such as in his opinion shall be just and fair, of the amount and value of the work done and materials incorporated in the work by the Contractor in the performance of this contract, excepting as provided in Article XXXII. The first such estimate shall be of the amount and value of work done and materials incorporated in the work since the Contractor commenced the performance of this contract on his part, and every subsequent estimate, except the final estimate, shall be of the amount and value of the work done and materials incorporated in the work since the last preceding estimate was made; provided, however, that no such estimate shall be required to be made when, in the judgment of the Engineer, the total value of the work done and materials incorporated in the work since the last preceding estimate amounts to less than four thousand dollars (\$4,000). ^{Partial estimates} ^{No estimate less than \$4,000.}

ART. XXXI. Upon each such estimate being made and certified in writing to the Board, The City shall, within 30 days after the date of the estimate, pay to the Contractor 90 per cent. of the amount stated in such estimate or certificate to be the value of the work done and materials furnished; provided, however, that The City may at all times reserve and retain from said partial payments, or any of them, in addition to the 10 per cent. above mentioned to be retained and reserved, any sum or sums which by the terms hereof, or of any Law of the State of New York passed prior to the date hereof, it is or may be authorized to reserve or retain. ^{Partial payments 90 per cent. of estimates.}

ART. XXXII. Estimates may at any time be withheld or reduced if, in the opinion of the Engineer, the work is not proceeding in accordance with this contract. ^{Partial payments may be withheld.}

ART. XXXIII. Whenever, in the opinion of the Engineer, the Contractor shall have completely performed this contract on his part, the Engineer shall so certify, in writing, to the Board, and in his certificate shall state, from actual measurements, the whole amount of work done by the Contractor, and also the value of such work under and according to the terms of this ^{Final estimate and certificate and final payment.}

contract. On the expiration of 40 days after the acceptance by the Board of the work herein agreed to be done by the Contractor, and the filing of a certificate of the completion and acceptance of the work in the office of the Comptroller, signed by the Chief Engineer and the Board, The City shall pay to the Contractor, in cash, the amount remaining after deducting from the amount or value stated in the last-mentioned certificate, all such sums as shall theretofore have been paid to the Contractor under any of the provisions of this contract, and also any sum or all such sums of money as by the terms hereof The City is or may be authorized to reserve or retain; provided, that nothing herein contained shall be construed to affect the right hereby reserved of the said Board to reject the whole or any portion of the aforesaid work, should the said certificate be found, or known to be, inconsistent with the terms of this agreement, or otherwise improperly given. All prior certificates upon which partial payments may have been made, being merely estimates, shall be subject to correction in the final certificate, which final certificate may be made without notice thereof to the Contractor, or of the measurements upon which it is based.

Interest in
case of delay
in payment.

ART. XXXIV. If the payment of the amount due the Contractor on any estimate shall be delayed beyond the time stipulated in Article XXXI, in the case of partial payments, or Article XXXIII, in the case of final payment, The City shall pay the Contractor interest on such amount at the rate of $4\frac{1}{2}$ per cent. per annum for the period of such delay. The term for which interest shall be paid shall be reckoned, in the case of a partial payment, from the thirtieth day after date of the estimate to the date of payment of the estimate, and in the case of the final estimate, from the fortieth day after the acceptance of the work by the Board to the date of payment of the estimate. The date of payment of an estimate shall be considered the day on which the estimate is ready for payment, as evidenced by the records of the Comptroller's office. If interest shall become due on any monthly estimate, the amount thereof, as determined by the Board, shall be added to a succeeding estimate. If interest shall become due on the final estimate, it shall be paid on a supplementary voucher prepared by the Board, and forwarded to the Comptroller for payment in the usual manner.

ART. XXXV. The City shall not, nor shall any department or officer thereof, be precluded or estopped by any return or certificate made or given by the Board, any engineer, or other officer, agent or appointee of The City under any provision of this contract, from at any time either before or after the final completion and acceptance of the work and payment therefor pursuant to any such return or certificate, showing the true and correct amount and character of the work done and materials furnished by the Contractor or any other person under this agreement, or from showing at any time that any such return or certificate is untrue and incorrect or improperly made in any particular, or that the work and materials, or any part thereof, do not in fact conform to the specifications; and The City shall not be precluded or estopped, notwithstanding any such return or certificate and payment in accordance therewith, from demanding and recovering from the Contractor such damages as it may sustain by reason of his failure to comply with the specifications.

City not
estopped by
any certificate
from correct-
ing errors or
recovering
damages.

ART. XXXVI. Neither the acceptance of the Board or its Engineer, or any of its employees, nor any order, measurement or certificate by the Engineer, nor any order by the Board for payment of money, nor any payment for, nor acceptance of the whole or any part of the work by the Engineer or the Board, nor any extension of time, nor any possession taken by the Board or its employees, shall operate as a waiver of any portion of this contract or of any power herein reserved to the Board, or any right to damages herein provided; nor shall any waiver of any breach of this contract be held to be a waiver of any other or subsequent breach.

Acceptance of
work or
extension of
time not a
waiver.

ART. XXXVII. No person or corporation other than the signer of this contract as Contractor now has any interest hereunder, and no claim shall be made or be filed and neither The City nor the Board, nor any member of the Board, nor any of its agents, shall be liable, or held to pay any money, except as provided in Articles X, XII, XXI, XXV, XXVII, XXIX, XXX, XXXI, XXXIII and XXXIV. The acceptance by the Contractor of the final payment aforesaid shall operate as, and shall be a release to, The City, the Board and each member of the Board and their agents, from all claim and liability to

Final payment
to terminate
liability of
City.

the Contractor for anything done or furnished for, or relating to, the work, or for any act or neglect of The City or of any person relating to or affecting the work, except the claim against The City for the remainder, if any there be, of the amounts kept or retained as provided in Article XXVIII, or interest, if any, due on the final estimate, as provided in Article XXXIV.

Contractor entitled to payment only in accordance with contract. ART. XXXVIII. The Contractor shall not demand nor be entitled to receive payment for the work or materials, or any portion thereof, except in the manner set forth in this contract; nor unless each and every one of the promises, agreements, stipulations, terms and conditions herein contained to be performed, kept, observed and fulfilled on the part of the Contractor, shall have been so far forth, performed, kept, observed and fulfilled; and the Chief Engineer shall have given his certificate to that effect, and the Board shall have accepted the work.

Legal address of Contractor. ART. XXXIX. The address given in the bid or proposal upon which this contract is founded is hereby designated as the place where all notices, letters and other communications to the Contractor shall be mailed or delivered. The delivering at the above-named place, or depositing in a post-paid wrapper directed to the above place, in any post-office box regularly maintained by the post-office, of any notice, letter or other communication to the Contractor, shall be deemed sufficient service thereof upon the Contractor, and the date of said service shall be the date of such delivery or mailing. Such address may be changed at any time by an instrument in writing executed and acknowledged by the Contractor and delivered to the Board. Nothing herein contained shall be deemed to preclude or render inoperative the service of any notice, letter or other communication upon the Contractor personally.

Address may be changed.

Service upon Contractor personally.

IN WITNESS WHEREOF the Commissioners of the Board of ^{Execution} Water Supply have hereunto set their hands on behalf of The _{of contract.} City, and the Contractor has also hereunto set his hand; and the Board and the Contractor have executed this agreement in triplicate the day and year first above written, one part to remain with the Board, one other to be filed with the Comptroller of The City, and the third to be delivered to the Contractor.

THE CITY OF NEW YORK,

BY BOARD OF WATER SUPPLY,

.....	}	<i>Commissioners of the Board of Water Supply.</i>
President,		
.....		
.....		

.....	}	<i>Contractor.</i>
.....		
.....		
.....		
.....		
.....		

Certificate of
acknowledg-
ment of
Board.

THE CITY, COUNTY AND STATE OF NEW YORK, SS.:

On the.....day of....., 1909, before

me personally came.....;

on the.....day of....., 1909,

.....;

on the.....day of....., 1909,

.....;

to me known and known to me to be the Commissioners of the
Board of Water Supply of The City of New York, the persons
described in and who, as such Commissioners, executed the
foregoing instrument, and they severally acknowledged to me
that they executed the same as such Commissioners, for the
purposes therein mentioned.

Dated the.....day of....., 1909.

.....

.....

Title

State of New York, }
 County of....., } ss.: Certificate of
 acknowledgment
 of
 Contractor, if
 individual.

On this.....day of....., 1909, before
 me personally came.....

.....
 to me known and known to me to be the same person de-
 scribed in and who executed the foregoing instrument, and
 he acknowledged to me that he executed the same for
 the purposes therein mentioned.

.....

.....
 Title

State of New York, }
 County of....., } ss.: Certificate of
 acknowledgment
 of
 Contractor,
 if a firm.

On this.....day of....., 1909, before
 me personally came.....

.....to me personally
 known and known to me to be a member of the firm of

.....
 and the person described in and who executed the foregoing
 instrument in behalf of said firm, and he acknowledged to me
 that he executed the same in behalf of, and as the act of said
 firm for the purposes therein mentioned.

.....

.....
 Title

Certificate of
acknowledg-
ment of Con-
tractor, if a
corporation.

State of New York,

County of.....,

} ss.:

On this.....day of....., 1909, before
me personally came.....

to me personally known and known to me to be the.....

.....of the.....

.....
the corporation described in and which executed the foregoing

instrument, and.....

to me personally known and known to me to be the.....

.....of said corporation,
who being by me severally duly sworn did say, each for him-
self, as follows:

The said.....

resides at.....,

and is such.....;

and the said.....

resides at.....,

and is such.....;

and by order of the Board of Directors of said corporation I

signed thereto my name and official designation.

.....

.....

Title

BOND FOR PERFORMANCE OF CONTRACT

KNOW ALL MEN BY THESE PRESENTS, THAT WE

.....

.....

.....as principal,

and

.....as surety,
are held and firmly bound unto The City of New York, in the
sum of fifty thousand dollars (\$50,000), lawful money of the
United States of America, to be paid to The City of New York,
or to its certain attorney, successors or assigns, for which pay-
ment, well and truly to be made, we bind ourselves, our suc-
cessors and our several and respective heirs, executors and
administrators, jointly and severally, firmly by these presents.

Sealed with our seals. Dated this.....day of

....., one thousand nine hundred and nine.

WHEREAS, the above bounden.....

.....

.....
by an instrument in writing, bearing even date with these
presents, ha contracted with The City of New York to fur-
nish all the materials and labor for, and in good, sufficient and
workmanlike manner, construct a portion of an intercepting
sewer in the City of Kingston, Ulster county, New York, to-
gether with all the work incidental thereto:

Now, THEREFORE, the condition of the above obligation
is such, that if the said.....

.....

.....

shall well and truly, and in a good, sufficient and workmanlike
manner, perform the said contract, and each and every provision
therein contained on part to be done and performed,
and complete the same in accordance with the terms and pro-
visions therein stipulated, and in each and every respect comply
with the conditions therein contained, then this obligation shall
be void, otherwise it shall remain in full force and virtue.

Signatures[L. S.]
of Contractor.

.....[L. S.]

.....[L. S.]

.....[L. S.]

Signatures[L. S.]
of surety or

officers of

surety

company.[L. S.]

.....[L. S.]

.....[L. S.]

.....[L. S.]

.....[L. S.]

State of New York,	}	ss.:	Certificate of acknowledg- ment of Contractor, if individual.
County of.....,			

On this.....day of....., 1909, before
me personally came.....

.....
to me known and known to me to be the same person de-
scribed in and who executed the foregoing instrument, and
he acknowledged to me that he executed the same for
the purposes therein mentioned.

.....

.....
Title

State of New York,	}	ss.:	Certificate of acknowledg- ment of Contractor, if a firm.
County of.....,			

On this.....day of....., 1909, before
me personally came.....

.....to me personally
known and known to me to be a member of the firm of

.....
and the person described in and who executed the foregoing
instrument in behalf of said firm, and he acknowledged to me
that he executed the same in behalf of, and as the act of said
firm for the purposes therein mentioned.

.....

.....
Title

Certificate of
acknowledg-
ment of Con-
tractor, if a
corporation.

State of New York,

County of.....,

} ss.:

On this.....day of....., 1909, before
me personally came.....
to me personally known and known to me to be the.....
.....of the.....
.....,
the corporation described in and which executed the foregoing
instrument, and.....
to me personally known and known to me to be the.....
.....of said corporation,
who being by me severally duly sworn did say, each for him-
self, as follows:

The said.....
resides at.....,
and is such.....;
and the said.....
resides at.....,
and is such.....;
I know the corporate seal of said corporation; the seal affixed
to the foregoing instrument is such corporate seal and it was so
affixed by order of the Board of Directors of said corporation,
and by the like order I signed thereto my name and official
designation.

.....

.....

Title

Attach acknowledgment and statement of surety company here.

State of New York,	}	ss.:	Certificate of acknowledg- ment of surety, if individual.
County of.....,			

On this.....day of....., 1909, before
me personally came.....

.....
to me known and known to me to be the same person described
in and who executed the foregoing instrument, and he acknowl-
edged to me that he executed the same for the purposes therein
mentioned.

.....

.....

Title

CERTIFICATE OF BOARD OF WATER SUPPLY AS TO AWARD OF CONTRACT

We, the undersigned Commissioners of the Board of Water Supply, appointed to carry out the provisions of Chapter 724 of the Laws of 1905, of the State of New York, and the amendments thereto, hereby certify that the acceptance of this contract will, in our judgment, best secure the public interests and the efficient performance of the work therein mentioned.

.....	} <i>Commissioners of the Board of Water Supply.</i>
President,	
.....	
.....	

*Office of the Board of Water Supply,
299 Broadway, New York.*

Dated, New York,, 1909.

CERTIFICATE OF BOARD OF WATER SUPPLY AS TO AMOUNT TO BE EXPENDED

We, the undersigned Commissioners of the Board of Water Supply, appointed to carry out the provisions of Chapter 724 of the Laws of 1905, of the State of New York, and the amendments thereto, hereby certify that the estimated amount to be expended under the contract for the construction of a portion of an intercepting sewer in the City of Kingston, Ulster county, New York, to be paid out of a Fund for the New Water Supply for The City of New York, Chapter 724, Laws of 1905,

and executed with.....

.....

and dated the.....day of....., 1909,

is

.....

..... dollars (\$.....).

.....	{ Commissioners of the Board of Water Supply.
President,	
.....	
.....	

Dated, New York,, 1909.

SPECIFICATIONS

NOTE.—In numbering the sections of the specifications, the decimal system is used, the figure before the decimal point indicating the item number, and the figure after the decimal point the serial number of the section under the particular item. Where several items are grouped together, as Items 1 and 2, the number of the first item of the group is placed before the decimal point, as 1.1, 1.2, 1.3, etc. The general sections have no decimal points.

GENERAL SECTIONS

**Location
of work.**

SECTION 1. The portion of the Intercepting Sewer in the City of Kingston, New York, covered by this contract, extends from the point where the Tannery Brook sewer crosses North Front street, along North Front street and Washington avenue, crossing under the Wallkill Valley R. R. to South Wall street, and along a right-of-way through private property to the first manhole on Wilbur avenue, north of the culvert where the Twaalfskill crosses said avenue.

**Description
of work.**

The work to be done consists, in general, of laying about 1,300 feet of 24-inch vitrified sewer-pipe, and 12 feet of 24-inch cast-iron pipe in open trench; driving about 6,200 feet of tunnel in earth and rock, and lining same; sinking shafts, building manholes, together with all necessary refilling, timbering, sheeting, bracing, etc.; removing the sewer-pipe now in North Front street and making house connections with the 24-inch sewer; changing any pipes, drains or culverts; providing for the disposal of waste material; maintaining necessary fences on private land and restoring the land to its original condition; resurfacing or repaving streets; maintaining the street railway tracks so as not to stop or endanger travel; and doing all that shall be necessary to complete the sewer according to these specifications and plans so that the same shall be ready for use.

Drawings.

SECT. 2. The location, general character and essential details of the work are shown on 8 drawings in the office of the Board, entitled "City of New York, Board of Water Supply, Intercepting Sewer, Kingston, N. Y.," and signed by J. Waldo Smith, Chief Engineer, and other engineers on the staff of the Board, numbered serially Contract 48, Sheets 1 to 8 inclusive, also bearing the Accession numbers RR 556, RR 565, RR 566, RR 567, RR 568, RR 569, RR 570 and RR 571 respectively,

and hereinafter referred to as the contract drawings. The work shall be constructed in accordance with these drawings and working drawings to be furnished from time to time by the Engineer.

SECT. 3. The drawings and specifications are intended to be explanatory of each other, but, should any discrepancy appear or any misunderstanding arise as to the import of anything contained in either, the explanation of the Engineer shall be final and binding on the Contractor. Any correction of errors or omissions in the drawings and specifications may be made by the Engineer when such correction is necessary for the proper fulfillment of their intention as construed by him. The classification of the materials as interpreted from the borings is not guaranteed.

Drawings and specifications are explanatory of each other.

SECT. 4. The Contractor is required to check all dimensions and quantities on the drawings or schedules given to him by the Engineer, and shall notify the Engineer of all errors therein which he may discover by such examination and checking. He will not be allowed to take advantage of any error or omission in these specifications, nor in the drawings or schedules, as full instructions will be furnished by the Engineer should such error or omission be discovered, and the Contractor shall carry out such instructions as if originally specified.

Contractor to check drawings and schedules.

SECT. 5. The Contractor shall maintain, during the performance of this contract, an office at the site of the work, at which he or his authorized agent shall be present at all times while work is in progress. Instructions from the Engineer left at this office shall be considered as delivered to the Contractor. Copies of the contract, the working drawings and the specifications for the work shall be kept at said office ready for use at any time.

Contractor's office at the work.

SECT. 6. Whenever the Contractor is not present on any part of the work where it may be desired to give directions, orders may be given by the Engineer, and shall be received and obeyed by the superintendent or foreman who may have charge of the particular part of work in reference to which orders are given.

Orders.

Lines and
grades.

SECT. 7. All lines and grades will be given by the Engineer, but the Contractor shall provide such materials and give such assistance as may be required, and the marks given shall be carefully preserved. The Contractor shall keep the Engineer informed a reasonable time in advance, of the times and places at which he intends to do work, in order that lines and grades may be furnished and necessary measurements for record and payment may be made with the minimum of inconvenience to the Engineer or of delay to the Contractor. No special compensation shall be made for the cost to the Contractor of any of the work or delay occasioned by giving lines and grades, or making other necessary measurements, or by inspection; but compensation shall be considered as having been included in the prices stipulated for the appropriate items.

Work to be
done in ac-
cordance with
drawings and
directions.

SECT. 8. The work, during its progress and at its completion, shall conform to the lines and grades given by the Engineer, and shall be done in accordance with the drawings and directions given by him from time to time, subject to such modifications or additions as he shall determine to be necessary during the execution of the work; and in no case will any work in excess of such requirements be paid for.

Right-of-way.

SECT. 9. The sewer is to be laid in the streets of Kingston, except from South Wall street to Wilbur avenue, where it will pass through private property. The Board has the right to use the streets of the City of Kingston for the purpose herein contemplated, and the authorities of the City of Kingston have agreed to procure the necessary rights-of-way through said private property. The Contractor shall comply with all local ordinances affecting or limiting work of this nature.

Pumping and
drainage.

SECT. 10. The Contractor shall provide all necessary pumps, pipes, drains and other means for removing water from the excavations. He shall remove and dispose of the water in a satisfactory manner.

Interference
with high-
ways, pipes,
temporary
crossings, etc.

SECT. 11. The Contractor shall conduct the work so as to interfere as little as possible with public travel, and shall maintain the street railway tracks so as not to stop or endanger travel. He shall provide property owners with safe means of

entering and leaving their premises. If necessary, the trench shall be bridged in a proper and secure manner. A space of at least 10 feet in all directions around water valves and hydrants in the vicinity of the work must be left free from all obstructions. All pipes, drains and culverts which are uncovered by the excavation and which require no change shall be carefully supported and protected. In case of injury to such pipes or structures, they shall be restored by the Contractor, without compensation therefor, in as good condition as they were before the work began. Whenever it becomes necessary to offset any water-mains or service-pipes of the City of Kingston, the Contractor shall make any necessary excavation and do the refilling, but the work of changing the mains or service-pipes shall be done by the Kingston Water Department, and all expense and cost of same shall be paid by the Contractor.

SECT. 12. Sanitary conveniences for the use of persons employed on the work shall be constructed and maintained by the Contractor in sufficient number. Sanitaries in the shafts or tunnels shall be provided with water-tight removable receptacles of suitable capacity. These receptacles shall not be allowed to overflow and shall be emptied and disinfected at required intervals as directed. All persons connected with the work shall be obliged to use the conveniences under penalty of discharge.

SECT. 13. Explosives shall be handled with care, and shall be at all times under the special charge of a competent watchman. ^{Explosives and blasting.} Blasting shall be conducted so as not to endanger persons or property, and the Contractor shall be held responsible for and shall make good any damage caused thereby. Whenever so required, blasts shall be covered or otherwise satisfactorily protected. Explosives shall be stored, handled and used as prescribed by the "Laws and Regulations Relating to Mines, Quarries and Tunnels" as compiled by the New York State Department of Labor. Blasting will not be permitted between the hours of 8 P. M. and 7 A. M.

CEMENT

SECT. 14. All cement used in the work shall be true Portland cement of well-known brands which have been in successful use for large engineering works in America for not less than five years, and which are manufactured at works which have

been in successful operation for at least two years. The brands shall be acceptable, and before beginning to furnish cement the Contractor shall inform the Engineer what brands he proposes to use.

Tests and
tensile
strength.

The cement used shall be subjected to the usual tests for soundness, fineness and time of setting. The requirements for tensile strength for briquettes one inch square in minimum section shall be as follows:

NEAT CEMENT

Age	Minimum streng
24 hours in moist air.....	175 pounds
7 days (1 day in moist air, 6 days in water)....	500 pounds
28 days (1 day in moist air, 27 days in water)...	600 pounds

Railroad
crossing.

SECT. 15. The line of the tunnel crosses the Wallkill Valley Railroad at Washington avenue, a public street. The Board has the right to use the streets of the City of Kingston, but the Contractor shall get a written permit from the Railroad Company allowing him to construct the tunnel under its tracks.

Power.

SECT. 16. All power machinery and tools within the tunnel shall be operated by electricity or compressed air.

Lighting.

SECT. 17. The shafts and tunnel shall be lighted with electric lights in sufficient number to insure proper work and inspection. Lamps for general illumination along the tunnel shall have an illumination equivalent to one 16-candle-power lamp for each 35 feet of tunnel. All wiring for electric lights or power shall be installed and maintained in a first-class manner, and be securely fastened in place.

Ventilation.

SECT. 18. A supply of fresh air sufficient for the safety and efficiency of the men shall be provided at all times throughout the length of the tunnel and shafts.

Responsibility
of Contractor
for plant
and methods.

SECT. 19. The Contractor shall provide and install such construction plants and shall use such methods and appliances for the performance of all the operations connected with the work to be done under this contract as will secure a satisfactory qual-

ity of work and a rate of progress which, in the opinion of the Engineer, will insure the completion of the work within the time specified. If at any time before the commencement, or during the progress of the work or any part of it, such methods or appliances appear to the Engineer to be unsafe, inefficient or inadequate for securing the safety of the workmen, the quality of the work or the rate of progress required, he may order the Contractor to increase their safety and efficiency or to improve their character, and the Contractor shall comply with such orders; but the failure of the Engineer to make such demand shall not relieve the Contractor from his obligation to secure the safe conduct, the quality of work and the rate of progress required by the contract, and the Contractor alone shall be responsible for the safety, efficiency and adequacy of his plant, appliances and methods.

SECT. 20. Such parts of lagging, sheeting or bracing as the Engineer deems advisable shall be permanently left in place in ^{Lagging, etc., left in place.} any tunnel, shaft or trench without additional payment.

SHAFTS IN EARTH

Item 1

SECT. 1.1 The Contractor shall sink four shafts at about ^{Location and size.} the locations shown on the plans. The shafts at Stations 32 and 54 shall be double and equipped with two cages and ladder-way as shown on Sheet 8. The shafts at the ends of the tunnel may be single and only large enough for one cage and ladder-way.

SECT. 1.2 The work to be done under this item shall include ^{Work included.} the furnishing of all the labor, machinery and materials necessary for the excavation, for the disposal of the spoil, for the lagging, sheeting, timbering and bracing, for the refilling, for the removal of water and for the changing of pipes. It shall include the maintenance of the shaft support, hoisting cages and ladder-way, safe and in good condition until the completion of the work. The shafts in earth shall be refilled with suitable material deposited in horizontal layers not exceeding 9 inches in thickness and each layer shall be thoroughly rammed with heavy rammers. Proper puddling will be accepted as a

substitute for ramming. If material for refilling is lacking, it shall be obtained at the Contractor's expense.

Hoisting and other machinery around the shafts shall be enclosed in neat buildings and the surroundings shall be kept clear of rubbish, spoil or anything which will make the appearance unsightly.

Pipes
encountered.

In case any water, gas, sewer or other pipes, etc., are encountered in the shafts, the Contractor shall do all the work and furnish all the materials necessary to remove the same temporarily outside the shaft, and at the completion of the work to replace the same in their original position. Changing of water-pipes shall be done in conjunction with the Kingston City officials as provided in Section 11.

Measurement
and payment.

SECT. 1.3 Payment under this item shall be made for the number of linear feet of shaft. The earth shaft shall be considered as beginning at the average elevation of the surface of the ground within the shaft site and extending down to the average elevation of the surface of the rock, or, if no rock is encountered, to a point 6 inches below the invert of the tunnel.

Open portal.

At the south end of the tunnel the formation of the ground is such that by excavating a wider trench for the sewer-pipe the tunnel can be worked from a portal. The Contractor shall have the option of so widening the trench and working from the portal, but payment shall be made as if the regular width of trench had been dug and the work had been done from a shaft as shown on the plans.

SHAFTS IN ROCK

Item 2

Work
included.

SECT. 2.1 The work under this item shall include all work in the shafts below the average elevation of the surface of the rock. It shall include the furnishing of all the labor, machinery and materials necessary for the excavation, for the disposal of the spoil, for the lagging, sheeting, timbering and bracing, for the refilling, and for the removal of water. It shall include the maintenance of the shaft support, hoisting cages and ladders, safe and in good condition until the completion of the work. Near the surface of the rock a concrete arch shall be

sprung over the shaft opening as shown on Sheet 8, which shall be paid for under Item 13. The refilling of the shafts in the rock above the concrete arch shall be done in the same manner as specified in Section 1.2. Below the arch acceptable rock may be used.

SECT. 2.2 Payment under this item shall be made for the ^{Measurement and payment.} number of linear feet of shaft. Measurement shall be made from the average elevation of the surface of the rock to 6 inches below the invert of the tunnel.

TUNNEL IN ROCK

Item 3

SECT. 3.1 The approximate length of the entire tunnel, in ^{General description, length, size, etc.} earth and rock, is 6,200 feet. A large portion of this appears to be in rock. Wherever the walls and roof do not, in the opinion of the Engineer, require support, they shall be left unlined, but the bottom shall be finished as shown on Sheet 8, "Tunnel in Solid Rock." In tunnel in earth, and in such tunnel in rock as in the opinion of the Engineer requires support for the walls and roof, a lining shall be built as shown on Sheet 8, "Tunnel in Rock and Earth Requiring Lining."

The desired size of the tunnel in rock not requiring lining is shown on Sheet 8, "Tunnel in Solid Rock," as well as the minimum allowable section beyond which no projections will be allowed. The Contractor shall so conduct his work that the excavation shall conform as nearly as practicable to these lines. In tunnel in rock requiring lining, the excavation shall be of dimensions to permit lining as shown on Sheet 8, "Tunnel in Rock and Earth Requiring Lining."

SECT. 3.2 The work under this item shall include all work ^{Work included.} in the rock tunnel except that included in Items 5, 6 and 14. The Contractor shall furnish all labor and materials necessary for the excavation, for disposal of the spoil, for removal of the water, for timbering, and for trimming the sides, bottom and roof to the lines given by the Engineer.

SECT. 3.3 Payment under this item shall be made for the ^{Measurement and payment.} number of linear feet of tunnel. All tunnel, where one-half or more of the minimum allowable sectional area is rock, shall be

considered as rock tunnel. Measurements for tunnel shall be made between shafts and the space occupied by shafts shall not be included.

TUNNEL IN EARTH

Item 4

Length
and size.

SECT. 4.1 The estimated length of the earth tunnel is about 200 feet. The size is shown on Sheet 8, "Tunnel in Rock and Earth Requiring Lining." In no case will the Contractor be allowed to build timbers into the masonry nearer than 8 inches to the inside of the tunnel lining.

Work
included.

SECT. 4.2 The work under this item shall include all work in the earth tunnel except that included in Item 6. The Contractor shall furnish all labor and materials necessary for the excavation, for the disposal of the spoil, for the removal of water, for sheeting, lagging, timbering and bracing.

Measurement
and payment.

SECT. 4.3 Payment under this item shall be made for the number of linear feet of tunnel. All tunnel where more than one-half of the minimum allowable sectional area is earth shall be considered as earth tunnel. Measurements for tunnel shall be made between shafts and the space occupied by the shafts shall not be included.

LINING OF TUNNEL IN SOLID ROCK

Item 5

Method.

SECT. 5.1 Wherever in the opinion of the Engineer the rock in the tunnel does not require support, all loosened fragments shall be removed, and the floor shall be finished as shown on Sheet 8. The 24-inch split pipe shall be laid and filled around with concrete which shall be graded off on one side of the pipe as shown.

Concrete.

SECT. 5.2 The concrete used under this item shall be of the same quality as that specified in Item 13.

Split pipe.

SECT. 5.3 The split pipe shall be the best quality salt-glazed, vitrified, hard-burned clay pipe. Each pipe shall be straight,

with ends square to the sides and shall have hubs or sockets of the size to properly admit the spigot ends. The split pipe shall be laid to line and grade, and the joints shall be made with Portland cement mortar composed of 1 part cement and 2 parts sand. The inside of the pipe shall be kept cleaned of cement.

SECT. 5.4 Payment for work under this item shall be made ^{Measurement and payment.} for the number of linear feet of lining. The price shall include the split pipe and concrete in place, and any necessary under-drain. Measurement shall extend to the center of the portal manhole.

LINING OF TUNNEL IN EARTH AND INSECURE ROCK

Item 6

SECT. 6.1 In tunnel in earth, and in tunnel in rock where in ^{Method.} the opinion of the Engineer the roof and wall are insecure, the tunnel shall be lined as shown on Sheet 8, "Tunnel in Rock and Earth Requiring Lining." If no water is encountered the sub-drain may be omitted. The 24-inch split pipe shall be laid and bedded in concrete, which shall be graded off on one side of the pipe as shown on the plan. The side walls shall be of concrete and shall conform to the dimensions as given. The cover for the tunnel lining shall be an 8-inch brick arch of the best Hudson River brick laid in Portland cement mortar mixed in the proportion of 1 part cement to 3 parts sand. All the space outside of the tunnel lining shall be refilled with earth or rock and thoroughly compacted. Weepholes shall be left on each side of the lining every 10 feet. The concrete to be used shall be the same quality as that specified in Item 13.

SECT. 6.2 The lining across the shafts shall extend into the ^{Lining across shafts.} tunnel section to such distance as may be directed by the Engineer in order to make the work secure. Payment for this work, as well as for the lining across the shafts, shall be made under this item.

SECT. 6.3 Payment under this item shall be made for the ^{Measurement and payment.} number of linear feet of lining. The price per foot shall cover

the entire lining in place, the split pipe and any necessary under-drain. Measurement shall extend to the center of the portal manhole.

EARTH EXCAVATION AND REFILLING TRENCH

Item 7

Refilling
trench.

SECT. 7.1 All trenches shall be refilled with suitable material as soon as practicable after the pipes have been laid, and care shall be taken not to disturb the mortar joints. At least 2 feet of earth shall be placed over the pipe before rock may be used in the refilling. If material for refilling is lacking it must be obtained at the Contractor's expense. Refilling shall be deposited in horizontal layers not exceeding 9 inches in thickness, and each layer shall be thoroughly rammed with heavy rammers. Proper puddling will be accepted as a substitute for ramming, except for that portion of the trench below a plane 1 foot above the top of the pipe.

Depositing
spoil between
Stations
74 and 76.

SECT. 7.2 Enough of the spoil from the excavation shall be deposited between Stations 74 and 76 to make sufficient embankment to cover pipe and to regrade Gilead street.

Measurement
and payment.

SECT. 7.3 In earth excavation for trenches 12 feet or less in depth, payment shall be made for a trench 4 feet in width with vertical sides, and a depth measured from the surface of the ground to the bottom of the outside of the barrel of the pipe. For trenches ranging from 12 to 18 feet in depth, 5 feet in width shall be allowed for earth excavation. For trenches deeper than 18 feet, 6 feet in width shall be allowed for earth excavation. If rock is encountered, the depth for the earth excavation shall be measured to the profile of the rock on the center line. For earth removed from beyond the established limits no allowance shall be made. At manholes the measurement for excavation shall be taken 7 feet long, 8 feet wide, with vertical sides to a depth to be determined by the Engineer.

The quantity to be paid for under Item 7 shall be the number of cubic yards measured as described above, and the price stipu-

lated for Item 7 shall include excavation, refilling or wasting of earth, pumping, bailing, draining, sheeting, shoring and bracing, and all incidental work.

ROCK EXCAVATION AND REFILLING TRENCH

Item 8

SECT. 8.1 All refilling shall be made with the same care as ^{Refilling.} specified under Item 7.

SECT. 8.2 In rock excavation, payment shall be made for ^{Measurement and payment.} a trench 4 feet in width with vertical sides, and a depth measured from the profile of the rock on the center line, to 6 inches below the grade of the bottom of the outside of the barrel of the pipe. No allowance shall be made for rock removed from beyond the established limits. Boulders one-half yard or larger shall be measured as rock excavation. Before laying the pipe, the trenches in rock shall be refilled with earth to the grade of the bottom of the pipe, and then thoroughly rammed. At manholes the measurement for rock excavation shall be the same as specified under Item 7.

The quantity to be paid for under Item 8 shall be the number of cubic yards measured as described above, and the price stipulated for Item 8 shall include the excavation, refilling, or wasting of rock, pumping, bailing, draining, sheeting, shoring, bracing and all incidental work.

FURNISHING AND LAYING 24-INCH VITRIFIED SEWER-PIPE

Item 9

SECT. 9.1 All sewer-pipe shall be the best quality of vitri- ^{Quality of vitrified pipe.} fied, salt-glazed, hard-burned, double-strength clay pipe. Each piece shall be straight and free from blisters, cracks or flaws. The ends of the pipes shall be square to the sides. The pipes shall have hubs or sockets large enough to receive the spigot ends to their full depth without chipping, and leave an annular space not less than $\frac{1}{4}$ inch around the spigot.

Laying
vitrified pipe.

SECT. 9.2 Each pipe shall be carefully inspected immediately before laying, and no cracked, broken or otherwise defective pipe shall be laid. Each pipe shall be placed on a firm bed and shall conform to the lines and grades given by the Engineer. Care shall be taken to obtain a true and even surface for the bearing of the pipe.

Joints in
vitrified pipe.

Joints shall be made with jute gaskets dipped in Portland cement grout and driven into the sockets. The joints shall then be filled with mortar composed of 1 part Portland cement and 2 parts sand. The mortar shall be thoroughly calked into the joints with proper tools. The face of each socket shall then be covered with mortar so applied as to make a neat bevel-joint. The interior of the pipes shall be carefully cleaned of all dirt and cement. An approved "follower," large enough to fill the pipe, shall always be kept in the pipe and drawn forward as the work progresses. Care shall be taken not to loosen any joint. Joints shall not be made in water, and water shall not be allowed to rise on any joint until the cement has set.

Removing
present pipe
and laying
24-inch pipe
in same
trench.

SECT. 9.3 On North Front street it is proposed to take up the present sewer-pipe and to lay the 24-inch pipe on the same line, but deeper and at a reversed grade. The work under this item shall cover the removal of the existing sewer and the care of the sewage.

Measurement
and payment.

SECT. 9.4 The amount of vitrified pipe to be paid for under Item 9 shall be the number of linear feet of the 24-inch pipe in place. The measurement in each case shall extend to the center of the manhole. The price stipulated for Item 9 shall include furnishing and laying all pipes and specials, furnishing all material for joints and all incidental work.

FURNISHING AND LAYING 24-INCH CAST-IRON PIPE

Item 10

Location.

SECT. 10.1 At Station 2+43, where the line of the sewer crosses Tannery brook, it is proposed to lay one length of 24-inch cast-iron pipe. The pipe shall be of a class to weigh not less than 3,000 pounds per length of 12 feet.

SECT. 10.2 The cast-iron pipe shall be protected with concrete so placed as to carry the bottom of the culvert over the pipe, and concrete so used shall be paid for under Item 13. ^{Protection of pipe.}

SECT. 10.3 The amount of cast-iron pipe to be paid for under Item 10 shall be the number of linear feet in place and the price stipulated for Item 10 shall cover the pipe in place. ^{Measurement and payment.}

FURNISHING AND LAYING 6-INCH VITRIFIED SEWER-PIPE

Item 11

SECT. 11.1 The pipe and fittings under this item shall be best quality salt-glazed, hard-burned, vitrified clay pipe, free from all cracks or blisters. The pipe shall be straight, with square ends, and the fittings shall be properly shaped. ^{Quality.}

SECT. 11.2 This item covers the changing of house connections now discharging into the sewer on North Front street, so that they shall discharge into the 24-inch sewer, also the changes in any other drains which may be necessitated by the laying of this sewer. This item, however, does not include any underdrain that may be laid in the tunnel. ^{Where used.}

SECT. 11.3 The pipe under this item shall be carefully laid with mortar composed of 1 part Portland cement and 2 parts sand. Care shall be taken that the pipe is left clear on the inside and properly connected to the 24-inch sewer. ^{Laying.}

SECT. 11.4 The amount of vitrified pipe to be paid for under Item 11 shall be the number of linear feet in place. The pipe shall be measured in place along its axis to the center of the 24-inch sewer. The price stipulated for Item 11 shall include fittings and labor for making connections to the 24-inch pipe. ^{Measurement and payment.}

MANHOLES

Item 12

**Location
and size.**

SECT. 12.1 There are 6 manholes to be built under this item: 2 portal manholes, Type C, a special manhole at Station 1+00, Type B, also 3 regular manholes, Type A, between Stations 0 and 10+50 ranging in depth from 15 to 25 feet. The details are shown on Sheet 8.

**Description
of manholes.**

SECT. 12.2 Manholes shall be built as shown in detail on Sheet 8, with the best Hudson River brick laid in mortar of the proportions 1 part Portland cement and 3 parts sand, and shall vary in depth to suit local conditions. Foundations for manholes shall be of concrete mixed in the proportion of 1 part Portland cement, 2½ parts sand and 5 parts stone. The outside of the manhole shall be plastered ½ inch thick with mortar composed of 1 part Portland cement and three parts sand.

The Type C manhole to be built at Station 10+85 shall be supplied with a 12-inch cast-iron drop connection put up on the outside of the manhole. The Contractor shall furnish and put in place for this connection a 12-foot length of cast-iron pipe weighing not less than 1,000 pounds and a 12-inch quarter-turn.

**Manhole
covers and
frames.**

SECT. 12.3 Frames and covers for manholes shall be the same size and design as the standard frame and cover used on the sewers of the City of Kingston.

**Payment
for manholes.**

SECT. 12.4 Manholes shall be paid for by a lump sum for each, and the price stipulated for Item 12 shall include furnishing frame and cover and all materials, building foundations, manholes and all incidental work. It shall also include the 12-inch cast-iron pipe for the drop inlet to the portal manhole at Station 10+85.

CONCRETE MASONRY

Item 13

Where used.

SECT. 13.1 The concrete under this item shall be used around the iron pipe to be laid at Station 2+43, around culvert at Station 10+00, in the arch to be built in the shafts to pre-

vent settlement, in the earth tunnel where it joins the rock for an additional foundation, and at such points where, in the opinion of the Engineer, it may be necessary to use additional concrete.

SECT. 13.2 The concrete under this item shall be composed ^{Quality.} of 1 part Portland cement, $2\frac{1}{2}$ parts clean, sharp sand, and 5 parts broken stone. The broken stone shall be run of crushed stone with the dust screened out, of a size that will pass through a 2-inch ring. Concrete shall be thoroughly mixed and placed as directed by the Engineer.

SECT. 13.3 The amount of concrete masonry to be paid for ^{Payment.} under Item 13 shall be the number of cubic yards in place, and the price stipulated for Item 13 shall include all labor, materials, forms, etc.

TRIMMING IN ROCK TUNNEL

Item 14

SECT. 14.1 Where any portion of the tunnel has been or- ^{Where} ~~dered~~ excavated to the dimensions required for "Tunnel in ^{allowed.} solid rock," and developments show a necessity for lining the same, as shown on Sheet 8, "Tunnel in Rock and Earth Requiring Lining," then and in that case only the Contractor shall be paid for any trimming that may be required in order to make room for the lining.

SECT. 14.2 Payment under this item shall be made for the ^{Measurement} ~~number of linear feet of tunnel trimmed.~~ ^{and payment.}

CLEANING UP

Item 15

SECT. 15.1 On or before the completion of the work the ^{Temporary} ~~Contractor shall tear down and remove all temporary structures~~ ^{structures.} built by him. All surplus material shall be removed, and as far as possible all surface traces of the work obliterated.

The surfacing material through the streets shall be carefully ^{Surface} ~~replaced and rammed or rolled with a heavy roller so as to~~ ^{material.}

leave the street in as good condition as it was before work began. Through the private land the trench shall be carefully filled to leave the soil at the top, and all surplus removed. Any fences which are taken down shall be replaced in as good condition as they were when the work began. All property which has been affected by the work shall be cleaned up and left in a satisfactory condition. The entire work shall be left satisfactory to the Engineer.

Payment.

SECT. 15.2 Payment for the above shall be the lump sum stipulated in Item 15.

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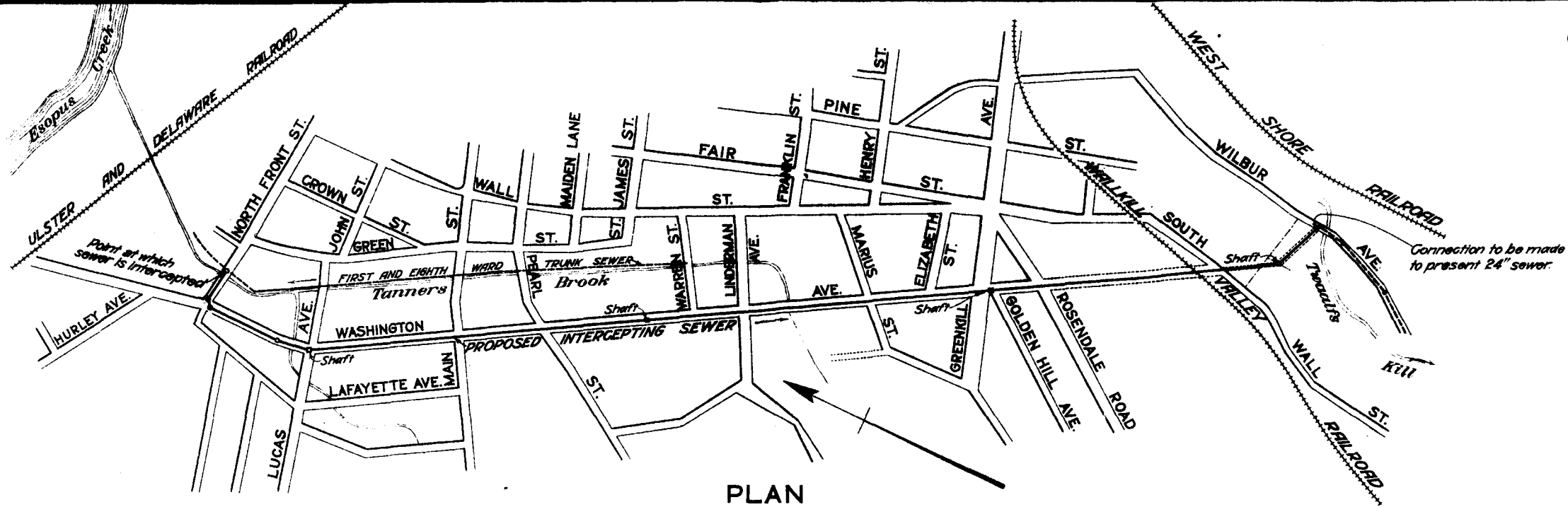
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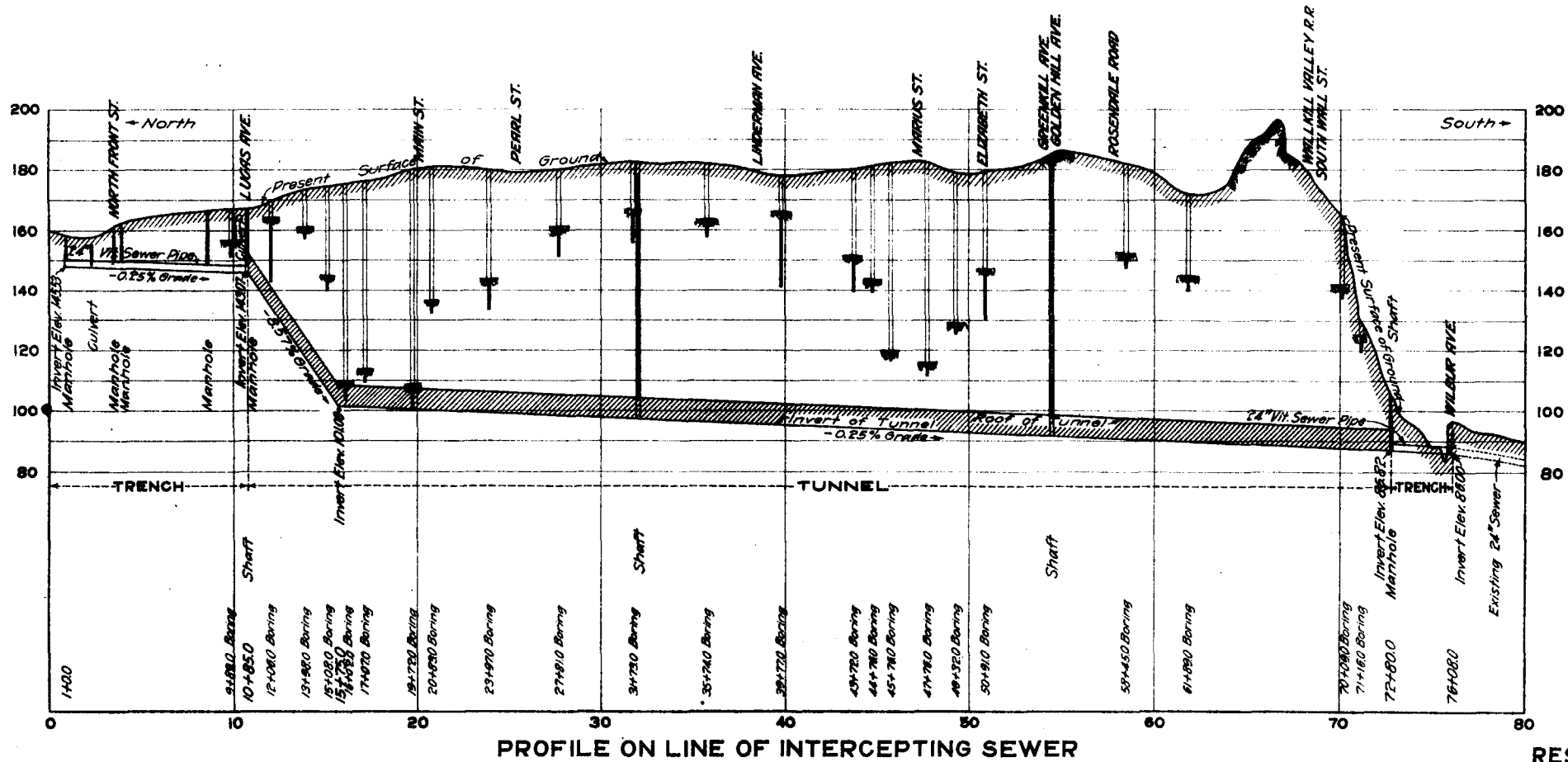
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PLAN



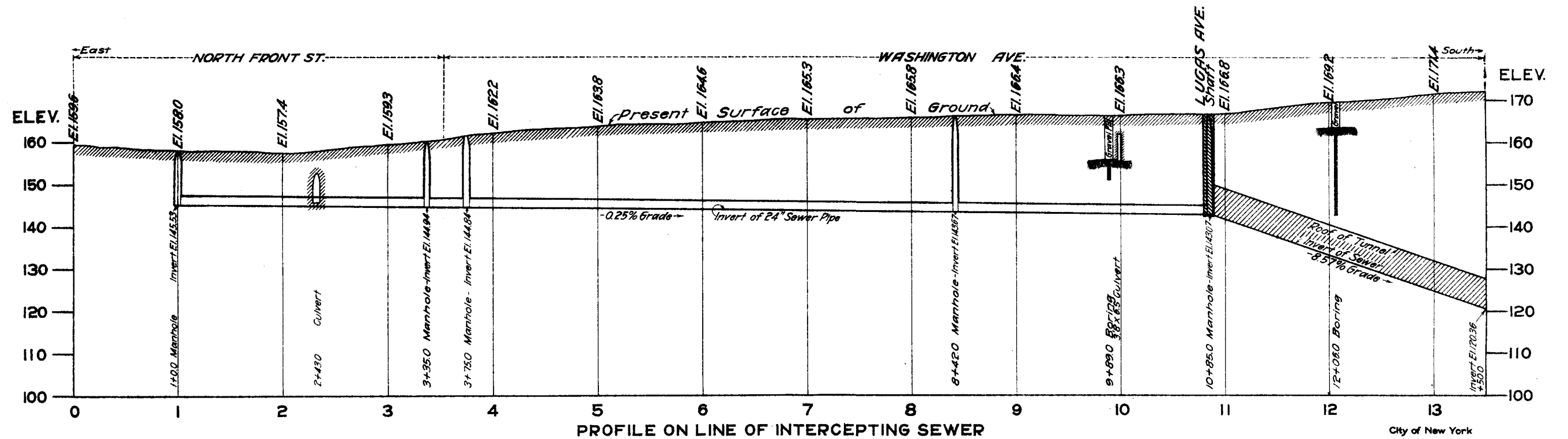
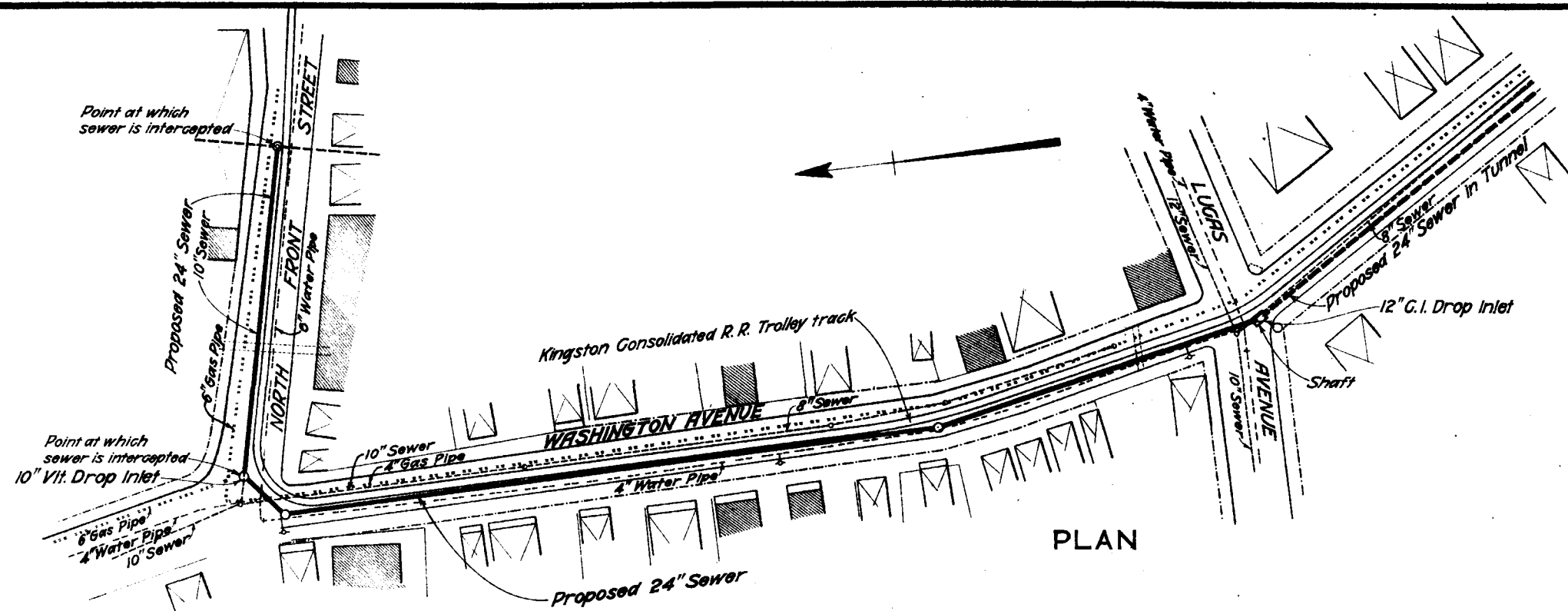
PROFILE ON LINE OF INTERCEPTING SEWER

The classification of materials as interpreted from the borings is not guaranteed.

Frederick H. Davis Div. Engr.

Carlton C. Dunn Dept. Engr.
Johnston Chief Engr.

City of New York
BOARD OF WATER SUPPLY
RESERVOIR DEPARTMENT
INTERCEPTING SEWER
KINGSTON-NEW YORK
325 0 325 650 FT.
100 0 100 200 M.
Scale



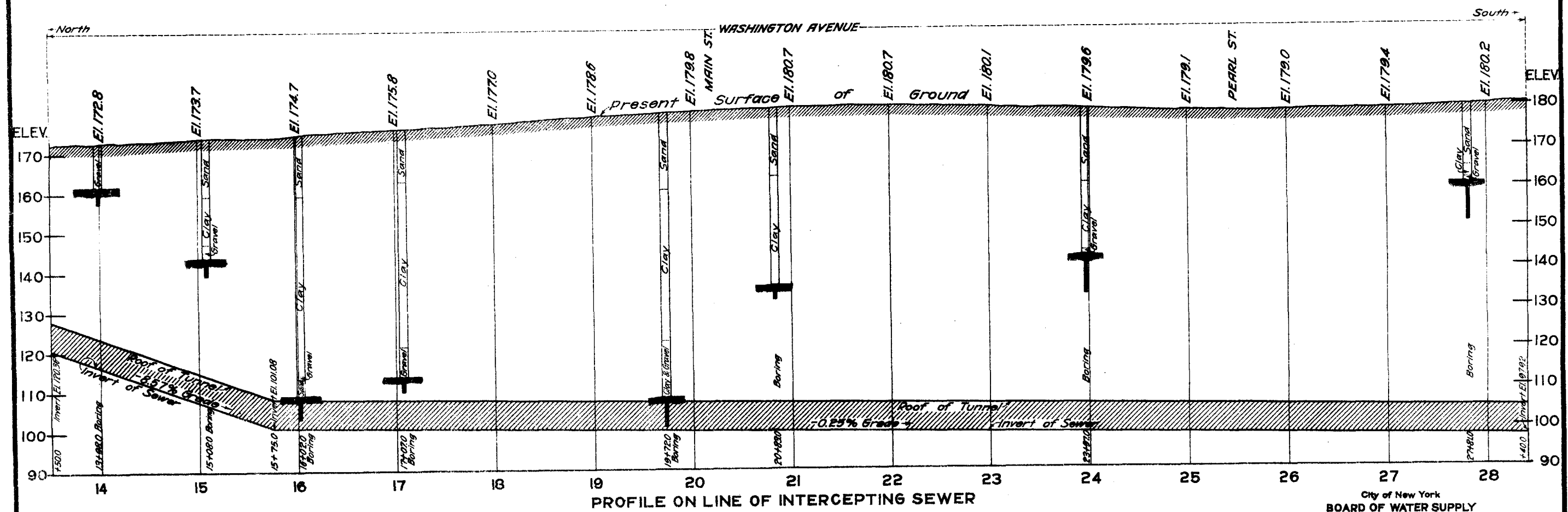
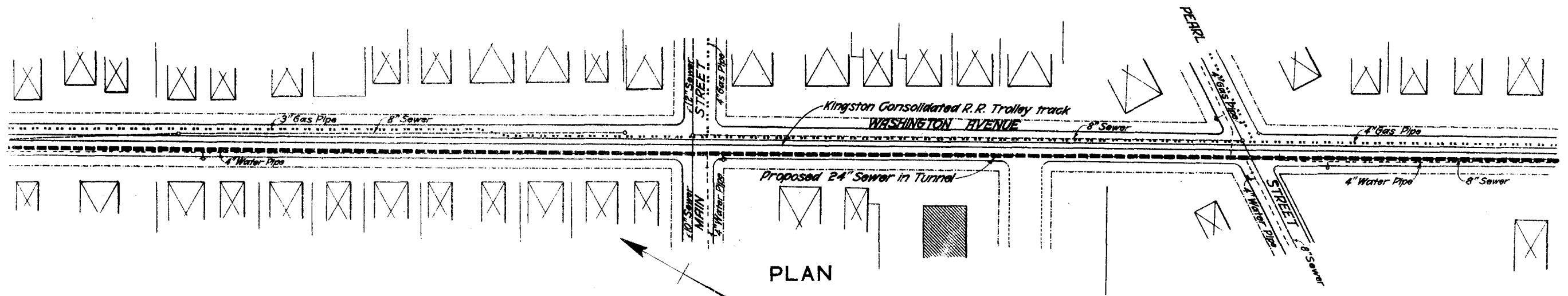
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Frederick M. Butler, Div. Engr.

Carlton E. Davis, Dept. Engr.
J. H. Sullivan, Chief Engr.

City of New York
BOARD OF WATER SUPPLY
RESERVOIR DEPARTMENT
INTERCEPTING SEWER
NORTH FRONT ST. AND WASHINGTON AVE.
KINGSTON-NEW YORK

Scale: 40 0 40 80 Ft.
10 0 10 20 M



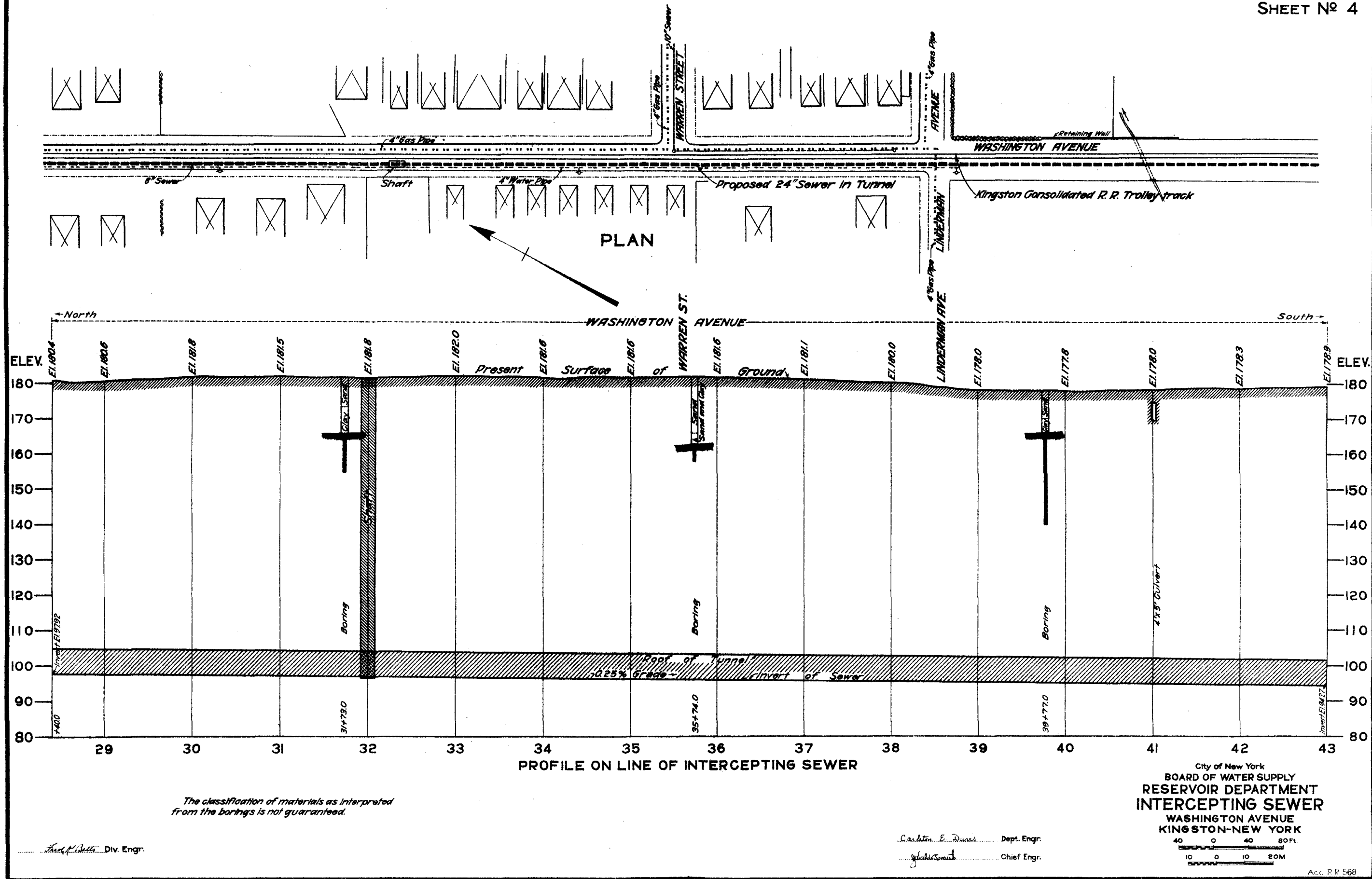
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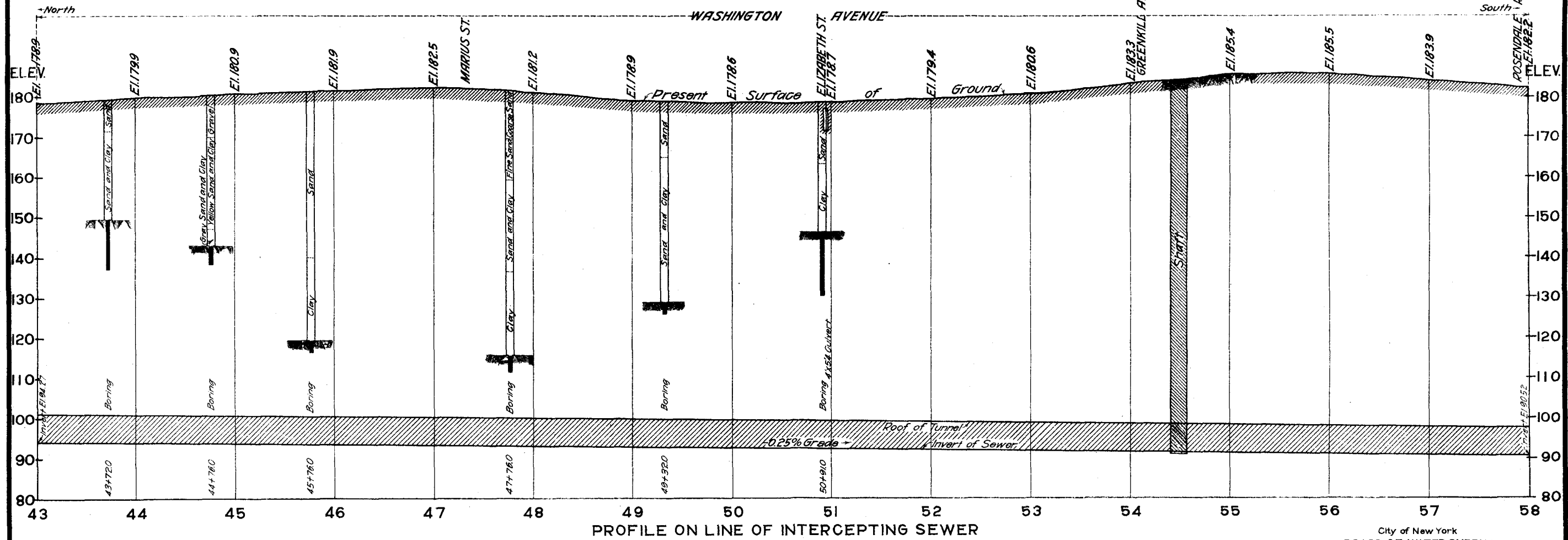
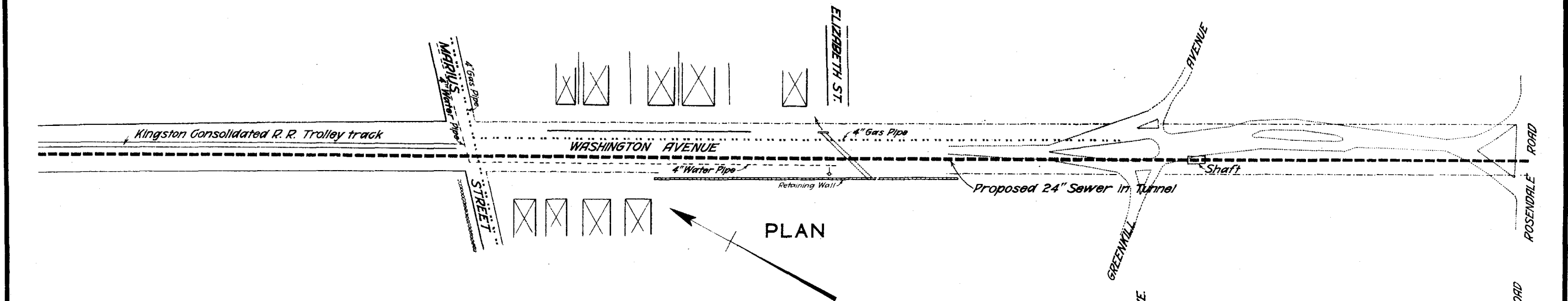
John H. Jones Div. Engr.

Charles E. Davis Dept. Engr.
John H. Jones Chief Engr.

City of New York
BOARD OF WATER SUPPLY
RESERVOIR DEPARTMENT
INTERCEPTING SEWER
WASHINGTON AVENUE
KINGSTON-NEW YORK

40 0 40 80 FT.
10 0 10 20 M





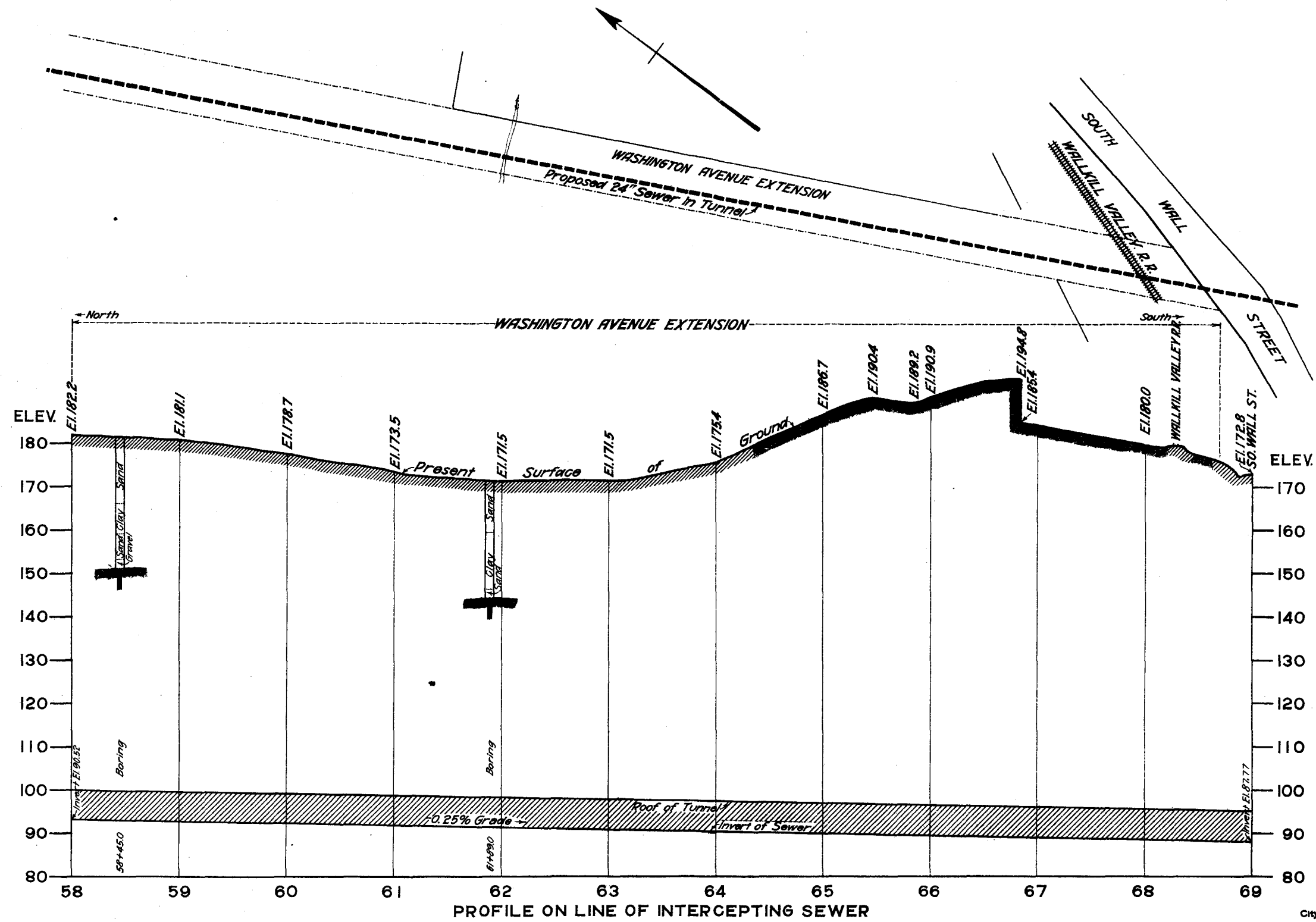
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Frank P. Bette, Div. Engr.

Charles E. Davis, Dept. Engr.
W. H. Smith, Chief Engr.

City of New York
BOARD OF WATER SUPPLY
RESERVOIR DEPARTMENT
INTERCEPTING SEWER
WASHINGTON AVENUE
KINGSTON-NEW YORK

40 0 40 80 FT.
10 0 10 20 M



The classification of materials as interpreted from the borings is not guaranteed.

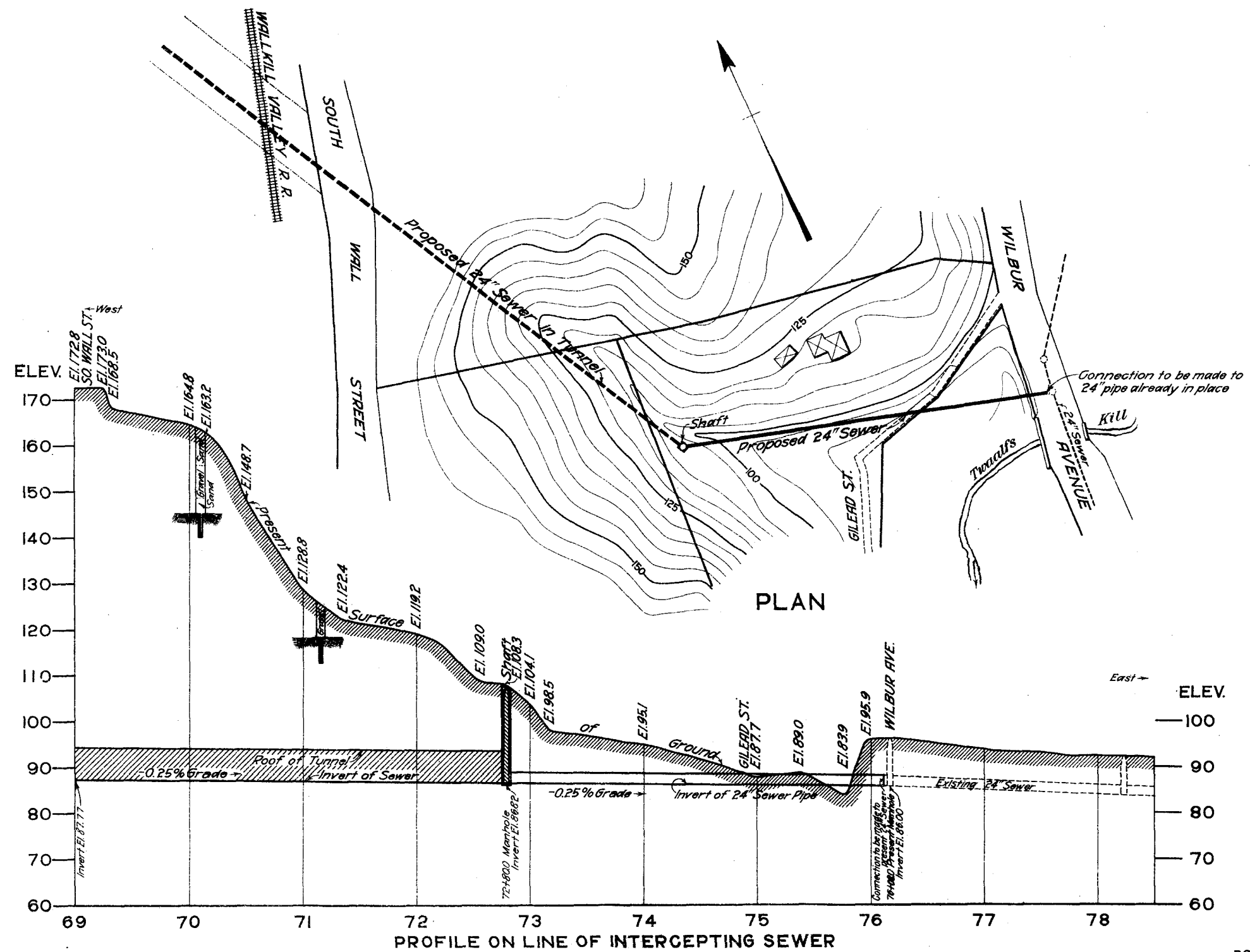
Paul P. Bette, Div. Engr.

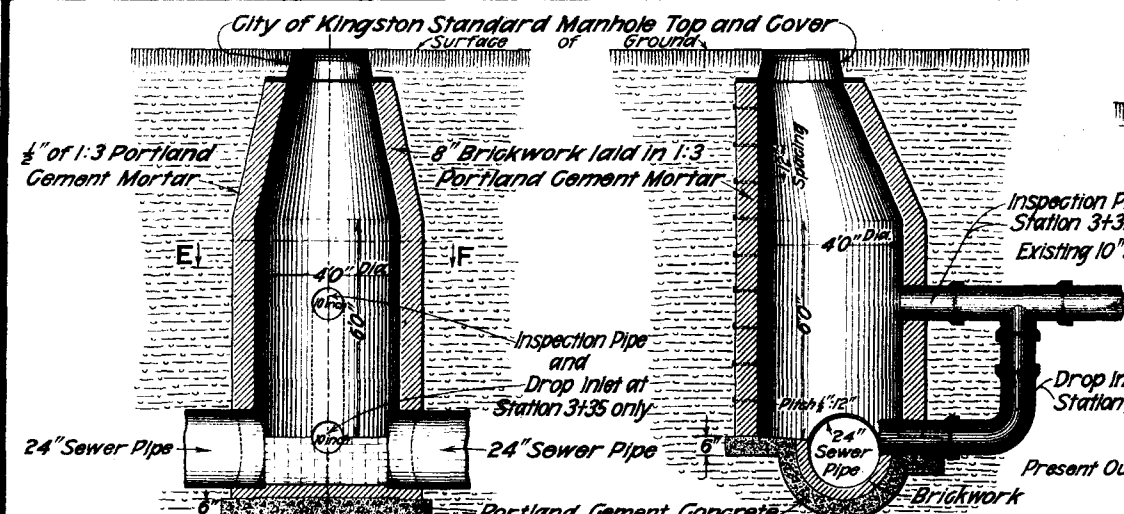
Carlton E. Deane, Dept. Engr.
John A. Smith, Chief Engr.

City of New York
BOARD OF WATER SUPPLY
RESERVOIR DEPARTMENT
INTERCEPTING SEWER
WASHINGTON AVENUE EXTENSION
KINGSTON-NEW YORK

40 0 40 80 FT.
10 0 10 20 M

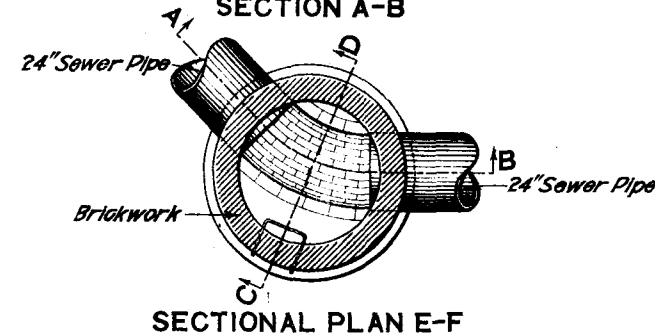
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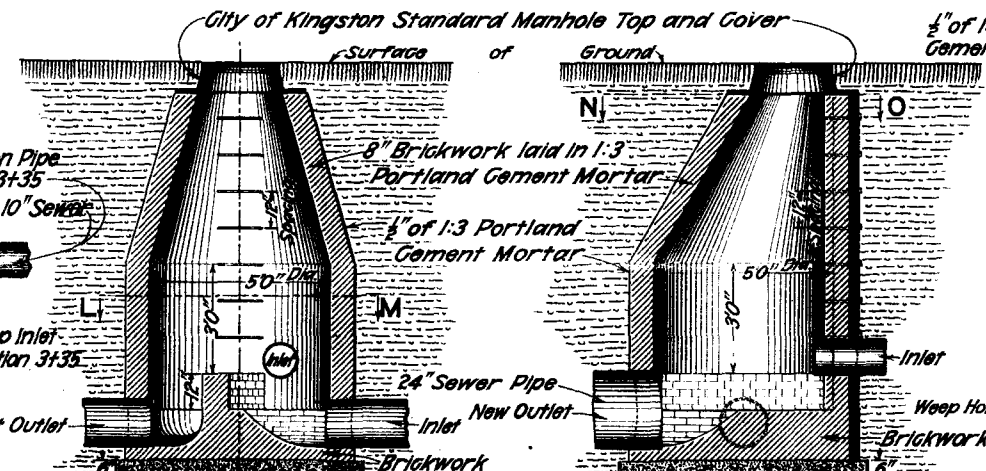
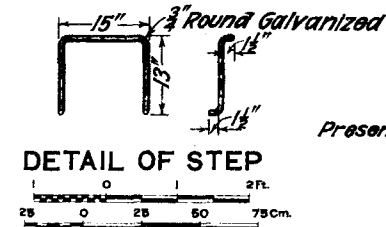


TYPE A MANHOLE
SECTION A-B

TYPE A MANHOLE
SECTION C-D

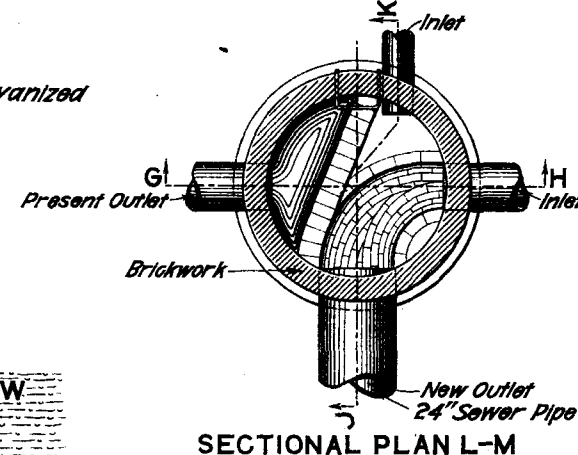


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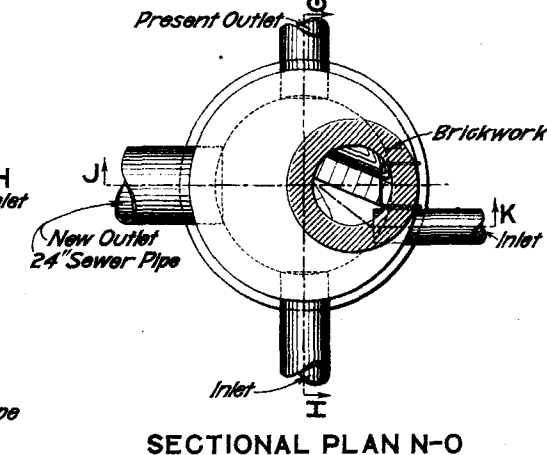


TYPE B MANHOLE
SECTION G-H

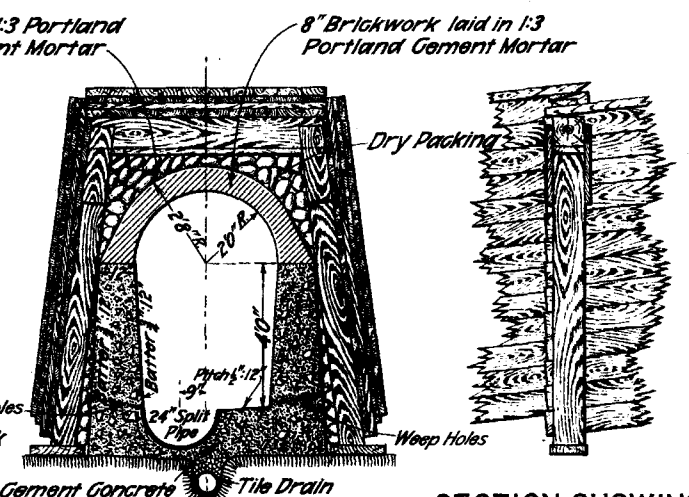
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SECTION J-K



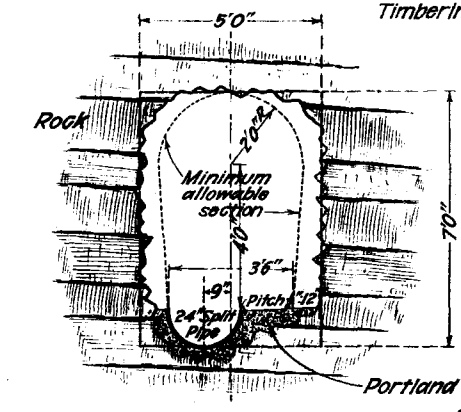
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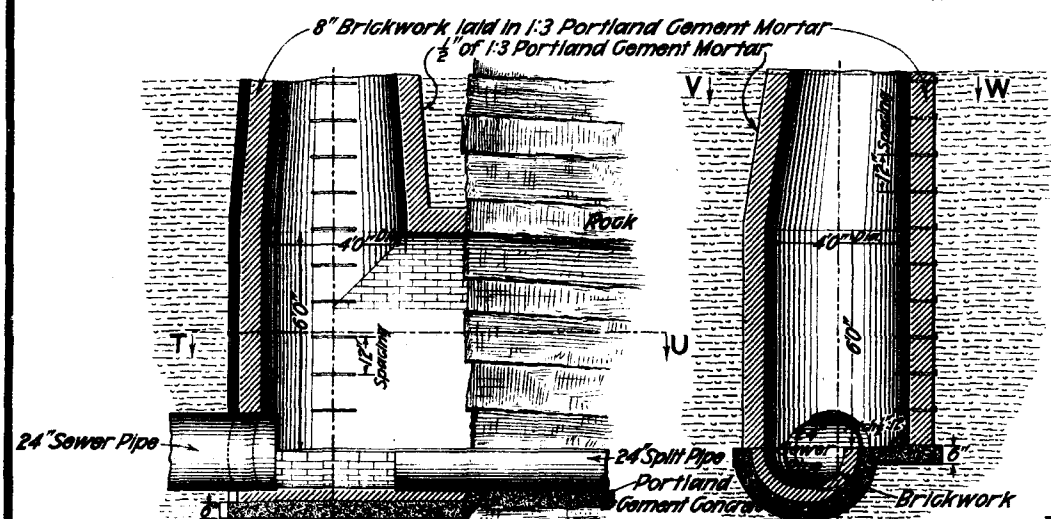
SECTIONAL PLAN N-O



SECTION SHOWING
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IN EARTH
Other acceptable methods of
timbering will be permitted

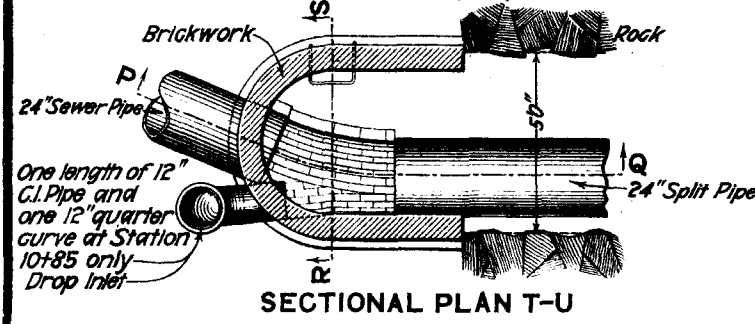


TUNNEL IN SOLID ROCK

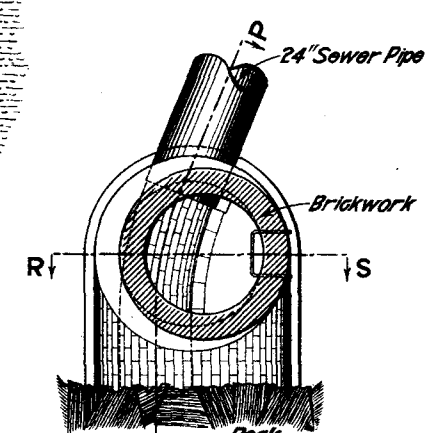


TYPE C MANHOLE
SECTION P-Q

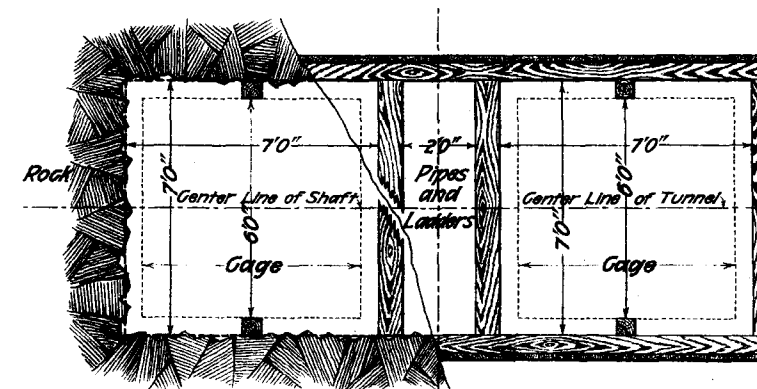
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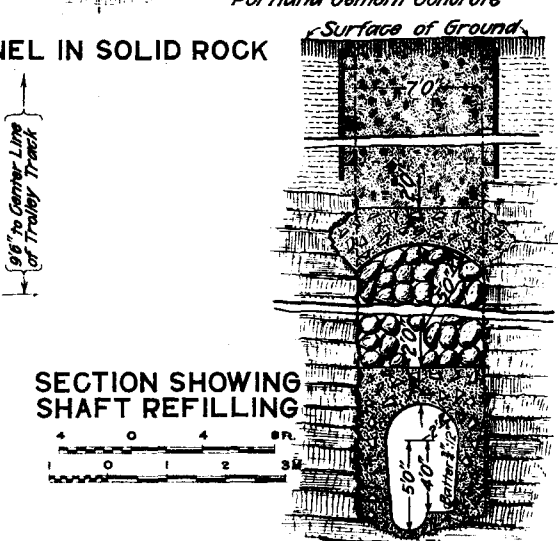
SECTIONAL PLAN T-U



SECTIONAL PLAN V-W



PLAN OF SHAFT
IN ROCK IN EARTH



SECTION SHOWING
SHAFT REFILLING